



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE RESOURCES, PRODUCTIONS AND SOCIAL CONDITION OF SPAIN.

BY ALEXANDER DELMAR,

LATE DIRECTOR OF THE BUREAU OF STATISTICS OF THE UNITED STATES, ETC.

(*Read before the American Philosophical Society, January 15, 1875.*)

INTRODUCTION.

Until very lately there were few or no histories or works of reference in the English language relating to Spain which contained any information with regard to that country later than for the period 1855-61; and a survey of the condition of Spain from the stand-point thus afforded presented but a gloomy prospect. During the sixty-one years ending with the latest date to which these works bring the student, the population of Europe and America had nearly doubled, and this increase in the numbers of the foremost races of the world was, as it always is, merely the type of that vast and almost universal material progress which renders such increase possible.

During the same momentous period, serfdom and slavery had been condemned or abolished in both continents, and with it the feudal system and the corvée. During the same time mankind had armed itself with the titanic powers of steam and electricity, and rushed with renewed strength into that perpetual struggle with nature, which is its heritage, but in the maintenance of which, at about the beginning of the period referred to, it had become well-nigh exhausted, for lack of suitable weapons and appropriate agencies. This epoch, too, had witnessed in many countries the separation of Church and State, the obliteration of castes, the spread of popular education, the establishment of popular representation, the mobilization of proprietary rights, the development of great scientific progress, and a brilliant series of discoveries in every department of thought.

During all this time, marked by the mightiest strides of material progress which the world had ever seen, that country of Europe which, while the rest of the Continent was shrouded in the darkness and bigotry and superstition of the Middle Ages, once held aloft the lamp of science and built up with the hands of its Semetic occupiers a civilization several centuries in advance of its time; that country from which subsequently went forth the imperial dicta that controlled one-half of the Continent, and all of the newly discovered world beyond the Western Ocean, lay inert and motionless.

The country of Abderrahman, of Alfonso el Sabio, of Ximenes, had made no sensible progress for centuries. The numbers of the people were substantially the same, the institutions were the same, the lives they led were the same. So late as the year 1855 but one-fifth of the surface of Spain was cultivated; the rest had been blasted by a ruinous system of exploita-

tion. A great portion of the entire country, cultivated and uncultivated, was owned by the Church and nobility. The Inquisition had been but recently suppressed; the peasantry were still in a condition of serfdom, the corvée was in vogue, the country swarmed with drones, bandits, smugglers, vagabonds and beggars; religious liberty was denied, and popular education was almost wholly unknown. There was no scientific development; no well-established middle class, and but the beginnings of a newspaper press and a railway and telegraph system. There were few or no roads, or manufactures, while commerce was restricted, and free discussion prohibited. In a word, Spain, though she had made more than one abortive attempt to do so, had not yet fully awakened from the torpid condition into which she had been cast ages before by the cold hands of ambitious, unpatriotic and selfish ecclesiastics. The rest of the world had long since awakened to a life of freedom and joined in the race of modern development; Spain was still asleep, drugged with the fumes of prescribed ignorance and dictated intolerance.

It is not held that this was truly the condition of Spain so late as up to 1855-61; but that this is substantially the picture of it that is to be found in many of the most authoritative and latest works of reference now extant in our language on the subject.

The following view of Spain was written during the reign of Ferdinand VII—about forty or fifty years ago (Macgregor, 994) :

“ Exclusive of about a fourth of the population, composed of persons living on their property without doing anything, Spain, according to the census of 1797, contained 100,000 individuals existing as smugglers, robbers, pirates and assassins, escaped from prisons or garrisons; about 40,000 officers appointed to capture these, and having an understanding with them; nearly 300,000 servants, of whom more than 100,000 were unemployed, and left to their shifts; 60,000 students, most of whom begged or rather extorted charity at night, on the pretence of buying books, and if to this melancholy list we add 100,000 beggars, fed by 60,000 monks at the doors of their convents, we shall find that at the period referred to, there existed in Spain nearly 600,000 who were of no use whatever in agricultural or the mechanical arts, and who were only calculated to prove dangerous to society. Lastly, having made these and other necessary deductions, we find that there remained 964,571 day laborers, 917,197 peasants, 310,739 artizans and manufacturers, and 34,399 merchants, to sustain by their productive exertions 11,000,000 of inhabitants. These results which, *mutatis mutundis*, are applicable at the present day as at the time when they were deducted, exhibit a state of society so radically corrupt and debased as to render all hopes of its regeneration very nearly desperate.”

Said M’Culloch, writing in 1844 : “ Owing to vicious institutions, bad government and other causes, Spain has, for a lengthened period, continued stationary or made little progress, while other nations have advanced with giant steps in the career of improvement.”

Said Macgregor, in 1850: "The government of Spain can scarcely be considered less despotic than Russia or Turkey;" and he goes on to speak of "the backward state of agriculture in Spain, the indolence of the rural population, the great numbers who are otherwise employed than in husbandry, and the preference given to pastoral occupation over that of tillage," etc.*

Appleton's Cyclopaedia, which is dated 1864, though it notices the beginnings of a recently developed appearance of progress in Spain, states that agriculture there is still in its infancy, notices the continuance of the *Mesta* and other institutions of the Middle Ages, and chronicles the then recent conservative reaction typified by the restoration to the Church of all the lands that had not been sold.†

In brief, the picture of Spain, which is obtained from the usual works of reference on the subject, depended upon, or accessible to, the American student, is that of a Spain still sleeping the sleep of the centuries.

But this picture is incorrect. Since the date of these works, or of the information which they contain, Spain has made, what is for her, enormous progress. From absolutism to constitutionalism was for her but a single jump, and not like France in 1789 through a Reign of Terror, but by the progressive steps of an orderly and deliberate revolution. This

* The following tables, though obviously imperfect, may nevertheless afford an indication of the backward social condition of Spain previous to recent changes:

DRONES IN SPAIN.

CLASSES OF DRONES.	Year 1797. Macgregor, p. 994, and M'Culloch, 840.	Year 1826. Macgregor, p. 944, and M'Culloch, 840.	Year 1857. Martin, etc.
Smugglers, etc.....	100,000	100,000	.....
Custom Officers.....	40,000	40,000	27,922
Domestic Servants	300,000	276,000	206,090
Student Beggars.....	60,000	.....	47,312
Beggars.....	100,000	36,000	.....
Monks.....	61,617	61,727	.....
Nuns.....	32,500	24,007	125,000
Other Ecclesiastical.....	81,803	85,735	.....
Vagabonds .....	.....	140,000	.....
Inquisitors	2,705 {	22,000	.....
Officers of Inquisition.....	..... {	2,000	.....
Wandering Convicts.....	.....	100,000	241,335
Army and Navy.....	500,000	350,000	478,716
Nobility .....	.....	.....	.....

The classification involves questions of opinion and taste in which I am far from agreeing with the writers from whom I quote.

The following table, from various authorities, shows the ecclesiastical population of Spain at various dates:

Year.	Number.	Year.	Number.
1787.....	188,625	1857.....	125,000
1803.....	203,298	1862.....	39,885
1833.....	175,574	1870.....	.....

Without feeling at all certain of the accuracy of these numbers, I think it safe to conclude that since 1855 the proportion of ecclesiastics in Spain has very materially decreased.

† These lands were again taken from the Church and sold, the Church receiving an equivalent for them in money. During the subsequent civil war this payment was stopped. Upon the recent accession of Alfonso XII, it was resumed. The substantial point of the whole history is that the people have got the lands and no reaction can deprive them of them.

revolution, like its predecessor in the same country of half a century before, may have gone too far and subjected itself to the evils of a conservative reaction which in time will destroy all its good effects, but this is not believed to be the case. During the late years preceding and during its republican government, the Spanish nation so thoroughly destroyed the power of the bigots, so utterly abolished feudal institutions, so scattered to the winds the privileges of castes and monopolies and so clinched and riveted these reforms by the educational institutions and agencies of material progress which it created, that for it to go back to the dark ages of twenty years ago is simply impossible. Several millions of people in Spain have learned to read during the past fifteen or twenty years; several thousand miles of railways have been built; several millions of acres of additional land brought under cultivation. These are works of progress that cannot be undone. Spain is like an inert mass suddenly hurled into the illimitable space of action; she must go on now forever.*

In endeavoring to portray the recent progress of Spain, I shall confine myself in this paper chiefly, though not entirely, to the important topic of agriculture, and the sub-topics more immediately connected with that greatest of all industries. This is done not only because progress in Spain means, and must, for some ages yet, mean, necessarily and above all things, progress in agriculture; but also because it is upon this subject that current works of reference on Spain are most deficient.

NATURAL RESOURCES, CLIMATE, ETC.

Of this once most foremost country of the world, it may be said briefly that nature gave her every original resource and man destroyed them all. Situate in the temperate and tropical zones, watered by two oceans, and penetrated by no less than 230 rivers, nearly one-half of her soil still lies barren, for the want of moisture denied her by the destruction of her forests. The average fall of rain during the year is stated to be "19.45 inches, while the average heat is 65° 42' Fahrenheit, even in winter only falling to 56° 54' and in summer ascending to 99°." U. S. Com. Rel., 1868, p. 373.

In Alicante and many other provinces it seldom rains at all. When it does, the floods are often very destructive. In November, 1864, an extraordinary inundation took place in the province of Valencia, causing the river Incar to overflow its banks, partially destroying the town of Alcira, and inflicting damage to the amount of over two million dollars (Br. C. R. 1865, p. 73). Spain is essentially a country of mountain ridges and ele-

* "Don José Sanchez de Bazan gave me some highly interesting accounts of recent Spanish progress, and the state of affairs in his country. There were three thousand miles of railways in Spain; over twelve million passengers were annually carried upon them; there were seven thousand miles of telegraph, fifteen thousand miles of common roads, etc. The Constitution guaranteed complete civil and religious liberty; the priests were banished; the press was free, and Spain would soon once more lift up her head among the nations."—*A Summer Tour in 1872*, by Alex. Delmar. Appleton's Journal: New York, November, 1873.

vated plateaux, the former being filled with mineral riches, the latter once the scene of immense agricultural productions.

MONEYS, WEIGHTS AND MEASURES.

Previous to July 19, 1849, the weights and measures of Spain differed in every province*, though those of New Castile, the province in which the capital of the country is situated, were the ones generally employed in works relating to the entire country. The following table shows the principal moneys and principal weights and measures in use previous to the establishment of the metrical system :

Moneys, Weights and Measures—Old System.

1 Escudo,	equal to (exchange value, about)	\$0.50 U. S. Gold.
1 Real de Plata,	" .....	.10 " "
1 Real de Vellon,	" .....	.05 " "
1 Arroba of wine,	"	4.288 gallons. { †
1 Arroba of oil,	"	3.323 " }
1 Aranzada,	"	1.105 acres. }
1 Fanegada,	"	1 591 " }
1 Fanega,	"	1.55 bush. { ‡
1 Libra,	"	1.0144 lbs. avoir. §

There is also a land measure used in Valencia, and perhaps elsewhere, called the *hanegada*, equal to 0.2062 acres. The *cahiz* is equal to 12 *fanegas*, or 18.6 bushels.

Moneys, Weights and Measures—New System.

Although the metrical system was established throughout the entire kingdom of Spain by the law of July 19, 1849, the old metrology continued to be employed in Spanish works so late as 1859, and sometimes it is still used. Under the present system Spanish names are given to the French moneys, weights and measures. The franc is called the *peseta*; the metre, *metro*; the litre, *litro*, etc. The equivalents of these terms are well known.

The reform effected by the adoption of the metrical system in Spain, though insignificant when compared with the far more essential reforms which will presently be alluded to, is nevertheless not altogether unim-

* For a full account of Spanish provincial metrology see book of Instructions to Spanish Consuls, a work to be found in the hands of the various Spanish consular officials throughout the world.

† Von Baumhauer.

‡ The best authorities for these equivalents are : 1. The Official Instructions to Spanish Consuls; and 2. The able paper of M. Von Baumhauer, published in the Report of the Seventh International Statistical Congress, vol. 3, p. 173. These authorities agree substantially as to the Castilian *Aranzada* and *Fanegada*. The Spanish work establishes the *Aranzada* at 4471.92644 metres; M. Von Baumhauer says 44.71918 ares. The Spanish work fixes the *Fanegada* at 6439.574075 metres; M. Von Baumhauer says 64.39533 ares. But when it comes to the *Fanega* they differ. The Spanish work sets it down at 55.101055 litres; while M. Von Baumhauer says 55.50128 litres. Other authorities differ from both of these. Deeming the Spanish official publication the highest authority on the subject, I have adopted the equivalents therein established as being the most correct. The American equivalents of the metrical weights and measures are from the invaluable little work of Dr. B. F. Craig, of Washington, D. C., which corrects the errors of the British Assay Office.

§ Von Baumhauer.

portant ; for it rendered possible intercommunication and commercial dealings between the various provinces of Spain which, under the old system, were almost impossible. There were *arrobas* and *fanegas* and *fane-gadas* in all the provinces, but no two were of like value, and they differed enormously. The *fanegada*, which contained 576 *estuadas carrés* in Castile, contained from 100 to 625 in the other provinces, and the *aranzada*, which contained 400 in Castile, contained from 300 to 600 elsewhere. (Von Baumhauer.) With an illiterate population, such a diversity of terms was tantamount to an almost entire prohibition of intercourse between the provinces.

TOTAL AREA OF COUNTRY.

In the Spanish statistical tables, Spain is usually meant to embrace the Balearic and Canary Isles. The following table gives the total superficies:

	KILOMETRES CARRÉS.	MILES.	ACRES.
Spain proper.....	494,946	190,257	121,764,480
Balearic Isles.....	4,817	1,852	1,185,280
Canary Isles	7,273	2,796	1,789,440
Total.....	507,036	194,905	124 739,200

CULTIVATED AREA AT VARIOUS DATES.

I have before me nine different accounts of the cultivated area of Spain at four different periods, viz.: 1. The account of Miguel Ozorio y Redin, who wrote in the last half of the seventeenth century; 2. The official returns for the year 1803; 3. An account from the *Junta de Medios*, concerning the divisions of land in 1803; 4. A statement laid before the Cortes in 1808; and 5, 6, 7, 8, and 9, various accounts relative to the divisions of land from the year 1857 to the present time. Of these accounts the earlier ones have generally been treated by English writers as more or less fanciful ; on the contrary, I believe them, when rightly understood, to be more or less correct. Confusion of the terms, "productive land," "cultivable land," "cultivated land," "arable land," "area sown in grain," and "area in which grain is sown," as well as error in the translation of "fane-gadas" and "fanegas" being sufficient to account for their apparent discrepancies.

Selecting the second one, as perhaps the most reliable, we have the following divisions of Spain proper for the year 1803:

DIVISIONS OF LANDS 1803.	SQUARE LEAGUES.	ACRES.
Cultivated lands and fallows	4,310	27,627,100
Pastures and commons	11,658	74,727,780
Forests and copses	1,580	10,127,800
Mountains and rivers.....	1,342	8,602,220
Total....	18,890	121,084,900

I deem the following to be the most reliable one relative to any late year preceding the period of recent progress:

DIVISIONS OF LAND IN 1857.		ACRES.
Land sown in grain, potatoes, beans and peas, roots, vegetables, commercial crops, fallow land, grass land under rotation, chestnut groves, orchards and gardens.....		32,210,071
Vineyards		2,906,783
Olive grounds.....		2,122,730
Meadows and pastures.....		16,926,028
Mountainous lands.....		10,832,730
Sites, mines and quarries.....		3,586,247
Total productive land.....		68,584,589
Forests.....		6,885,600
Barren and waste; also lakes, rivers, roads, etc.....		49,269,011
Grand total.....		124,739,200

Comparing the two accounts, so far as their different classifications will enable a comparison to be made, we have the following results:

DIVISION OF LAND.	1803. SPAIN PROPER. ACRES.	1857. SPAIN AND THE ISLES. ACRES.	GAIN OR LOSS. ACRES.
Cultivated and fallow	27,627,100	37,239,584	G. 9,612,484
Forests.....	{ 10,127,800	6,885,600	{ Loss.
Copse.....			
Mountains.....	{ 8,602,220	10,832,830	{
Rivers	{	Inc. in "Barren,"	Unchanged
Sites, etc		3,586,247	
Meadows and pastures.....	{ 74,727,780	16,926,028	Unchanged.
Barren, waste, etc.....		49,269,011	Loss.
Total	121,084,900	124,739,200	

Beyond the essential point that nearly ten million of acres were added to the cultivated lands, it can only be stated roughly that the forest lands of Spain, which, so far as concerns the period under review, were never extensive, slightly diminished; the pasture lands (properly speaking, there were few or no meadows in Spain), remained unchanged, and the common and waste lands diminished, by being brought partly under cultivation.

IRRIGATION.

Of the above mentioned 37,239,584 acres of cultivated land, 2,857,648 acres were irrigated as follows:

DIVISIONS OF IRRIGATED LAND.	FANEGADAS, EACH OF 1.60 ACRES.	ACRES.
Arable land.....	1,370,090	2,192,144
Vineyards	67,374	107,755
Olive grounds	74,618	119,389
Other.....	273,970	438,360
Total	1,786,025	2,857,648

LAND SOWN IN GRAIN AND POTATOES.

Of the 32,210,071 acres of land devoted to grain and other products, or in fallow, the following portions were sown in grain and potatoes only:

Wheat	7,311,892 acres.
Barley	3,182,100 " "
Rye.....	2,961,863 "
Maize and other grain.....	1,351,687 "
Potatoes	509,503 "
<hr/>	
Total.....	15,316,865 "

The divisions of land in 1874 are estimated as follows:

DIVISIONS OF LAND IN 1874.	ACRES.
Cultivated and fallow :	
Arable land, <i>i.e.</i> , land sown in various crops, fallow land, grass under rotation, groves, orchards and gardens....	40,000,000
Vineyards.....	3,000,000
Olive grounds.....	2,000,000
Meadows and pastures.....	17,000,000
Mountainous land.....	10,800,000
Sites, mines and quarries.....	3,700,000
Forests	6,800,000
Barren, waste, public and water surfaces.....	41,439,200
<hr/>	
Total.....	124,739,200

The cultivated and fallow lands, which amounted to less than 28,000,000 acres in 1803, and about 37,000,000 acres in 1857, now amount to 45,000,000 acres; showing as great progress during the seventeen years from 1857 to 1874 as occurred in the fifty-four years from 1803 to 1857. According to this measure, progress has been thrice as rapid during recent years as it was previously.

POPULATION.

According to Martin, Spain, in the time of Julius Cæsar, contained a population of 78,000,000; according to a Spanish author quoted in the U. S. Com. Rel., 1865, p. 169, she had 68,000,000; according to Appleton's Cyclopedias she had 40,000,000. I place no reliance whatever on these conjectures. Seaman's Progress of Nations, p. 551, also contains a series of conjectures on the subject which are certainly wrong or fallacious. The earliest authentic account of the population of Spain, dates about five centuries ago, when under the Moors, she was stated to have contained 21,700,000 inhabitants. This account—from the number and opulence of her towns, the works of improvement executed and which still remain, the breadth of land cultivated, the number of houses, workshops, artisans, etc., all of which are known with reference to many localities,—this account I believe to be substantially correct.

Through the expulsion of the Moors, who were the agriculturists, and the Jews, who were the manufacturers and merchants of Spain, this vast population, which, in my opinion, is the greatest the soil of Spain ever

supported, gradually dwindled down to about 7,600,000 inhabitants in 1723. From the last named period it has very slowly increased to something over 17,000,000 at the present time.*

The following table exhibits the data on this interesting subject, together with such remarks as I have deemed were necessary to be made and the authorities from whom I have quoted. I have indicated the figures which I consider incongruous by placing them in brackets.

POPULATION OF SPAIN AT VARIOUS PERIODS.

(The figures in brackets do not appear to agree with the others.)

<i>Year.</i>	<i>Population</i>	<i>Authority.</i>	<i>Remarks.</i>
13th Cen.	21,000,000	Rep. Br. Sec. Leg., 1866.....	Quoted from Spanish author
1380	21,700,000	Castile 11,000,000, Arragon 7,000, 000 and Grenada 3,000,000.....	
1594	8,206,791	Rep. Br. Sec. Leg., 1866.....	
1618	[9,000,000]	Cevallos	Quoted by Macgregor.
1618	7,500,000	Ustariez.....	Quoted by Macgregor.
1688	[8,000,000]	U. S. Com. Rel., 1865.....	
1700	[8,000,000]	Macgregor	At death of Charles II.
1723	7,625,000	"	From an official census.
1726	[5,423,000]	"	Excludes nobility and clergy
1768	9,307,800	Com. Rel., 1865.....	
1769	9,301,728	Macgregor	Includes Canaries and Afri- can settlements.
1770	9,307,000	"	Excludes Canary Isles.
1788	10,143,000	"	Includes Canaries, etc.
1789	10,761,488	Com. Rel., 1865.....	
1797	10,541,000	Appleton's Cyc.....	
1797	[12,000,000]	Com. Rel., 1865.....	
1803	10,351,000	Macgregor	Census, Spain proper.
1803	10,351,075	U. S. Census, 1850, p. xxxiv.....	Spain and Balearic Isles.
1820	11,000,000	Com. Rel., 1865	
1821	11,248,000	Macgregor	Census, Spain proper.
1821	11,248,028	U. S. Census, 1850.....	" " "
1823	12,000,000	Com. Rel., 1865.....	
1826	[13,712,000]	Macgregor	Cadastral ret'ns, Spain pro'r
1827	[13,953,957]	"	Cadastral ret'rn, Spain and Balearic.
1828	[13,698,000]	Com. Rel., 1865.....	Martin says 13,898,029.
1833	12,087,991	Ency. Amer., vol. 14	Official. Excludes Balearic..
1833	12,386,841	Alm. de Gotha, 1850.....	Official. Includes Balearic and Canary Isles.
1834	[14,660,000]	Macgregor	Estimated.
1834	12,232,194	U. S. Census, 1850.....	From Guibert.
1834	12,168,774	"	From M'Culloch.
1837	12,222,872	Martin	
1842	12,054,000	"	
1846	12,166,774	"	Includes isles.
1849	13,705,500	Alm. de Gotha.....	Spain proper.
1850	[10,942,280]	Br. Rep. Sec. Leg.....	Incorrect.
1857	14,957,575	Alm. de Gotha.....	Spain proper.
1857	[15,807,753]	Martin	Spain proper. Details given.
1859	15,460,000	"	Estimate.
1860	15,673,481	Rep. 7th Inter. Stat. Cong., vol. 3.....	
1861	15,887,304	" " " " "	{ The enumeration dates
1862	16,043,703	" " " " "	Dec. 31 in each year.
1863	16,180,183	" " " " "	
1864	[15,752,607]	Br. Stat. For. Coun.....	{ The enumeration dates
1864	16,302,148	Rep. 7th Inter. Stat. Cong., vol. 3.....	Dec. 31 in each year.
1865	16,378,481	" " " " "	
1866	16,526,474	" " " " "	
1867	16,656,879	" " " " "	
1868	16,732,052	M. S. 21-41-2-349.....	
1868	[16,090,550]	Br. Stat. For. Coun.....	Spain proper.
1869	16,800,000	Estimate.....	Spain proper.
1870	16,935,613	Br. Stat. For. Coun.....	Spain proper, census returns.
1871	17,000,000	Estimate.....	Spain proper.
1872	17,100,000	"	Spain proper.
1873	17,200,000	"	Spain proper.
1874	17,300,000	"	Spain proper.

* It is believed by some writers that the population of Spain again retrograded subse-

This is a most instructive table.

First. It shows an extraordinary decrement of the population of Spain from about the beginning of the fifteenth century until after the beginning of the eighteenth. This is attributed chiefly to the Moorish and Jewish exodus which commenced to take place in the year 1492, the same year in which that New World was discovered in which eventually so many of the exiles found both homes and religious liberty. From first to last it is supposed that no less than 300,000 Moorish and 300,000 Jewish* families, or nearly three millions of intelligent and industrious people were driven from Spain, and amidst the most shocking cruelties. These, together with the numbers who fled after the conquest of Grenada and the colonists to America, contributed to reduce the population from nearly 22,000,000 in the fourteenth century to little more than 7,000,000 in the seventeenth. Notwithstanding the persecution of the Moors and Jews, it is stated that considerable numbers remained in Spain, professing, if not believing, in the doctrines of the Church, and forming the bulk of the agricultural and industrial classes in many localities. This is affirmed by Macgregor and denied by Buckle, but I think the weight of evidence is with the former. M'Culloch, p. 845, says there were 60,000 Moriscoes in Grenada in his time, about the year 1840.

Evidence of the large population that dwelt in Spain under the Moorish régime is found in a class of facts, of which the following are examples:

"Before the Conquest in 1487 (the city of) Grenada had 70,000 houses and 400,000 inhabitants, 60,000 of whom were armed. It was defended by ramparts flanked by 1030 towers and two vast fortresses, each of which could receive in garrison 40,000 men.

"The kingdom (of Grenada) of which it is the capital, was only thirty leagues in breadth by seventy in length, but it contained thirty-two large cities and ninety-seven towns and 3,000,000 of inhabitants. The whole population at present does not exceed 83,000.

"The city of Cordova under the Moors occupied nearly eight leagues of the banks of the Guadalquivir, and contained 600 grand mosques, 3,837 small mosques or chapels, 4,320 minauts or towers, 900 public baths, 28 superb, 80,455 shops, 213,070 dwelling-houses, 60,300 hotels or palaces."

Moreau de Jonnés, 1834.

"The last official census states that 1,511 towns and villages were then totally uninhabited and abandoned." Macgregor, 1850.

For further evidence on this point, consult Buckle's *Hist. Civ.*, Draper's *Hist. Civ. and Civil Policy of America*.

Second. The table of population shows a very slow increment from the quent to the year 1830. This opinion is probably based on the cadastral returns of 1828, or thereabouts, and the smaller numbers of the census returns of 1833. It may be well-founded; but I have ventured to disregard it in arranging the figures of the text.

* This is the highest estimate. Buckle, who quotes a number of authors, states that the number of Jews actually expelled is differently estimated at from 100,000 to 800,000.
—*Hist. Civ.*, ii, 15.

beginning of the seventeenth century to about the year 1850. The population is stated to have been 7,500,000 in the year 1618 and 18,705,500 in 1849. This is an increase of but 82.7 per cent. in 231 years!

Third. The table shows a comparatively rapid increment of population since about the year 1850, to-wit: from 18,705,500 in 1849 to about 17,300,-000 in 1874, an increase of 26.2 per cent. in 25 years. This is the period of recent progress in Spain to which attention has been directed, and it is believed no better proof can be adduced in support of this allegation of progress than the rapid increment of population which, in spite of foreign and civil wars, has taken place.

RURAL AND CIVIC POPULATION.

The cadastral returns of 1826 gave the rural population at 80.4; the civic at 18.5, and the ecclesiastical at 1.1 per cent. of the whole. The proportion of rural population therein shown is probably correct at the present time.

AGRICULTURAL POPULATION.

Spanish statistics, at least as they reach compilers outside of Spain, are proverbially incomplete, contradictory and obscure, and they are no less so on this simple subject than on any other which I have found it necessary to examine. The agricultural population of a country but half cultivated, and that portion but indifferently tilled—a country, which, as a rule, has forbidden the importation of breadstuffs, while it had none to export; which is neither a pastoral nor a new country; and in which the struggle for subsistence is so great that a local and temporary drought is enough to stimulate what is else a constant but sluggish stream of emigration to other countries—ought to be uncommonly large. On the contrary, my information states it to be comparatively small. If the latest figures before me are correct, the agricultural population of Spain is but 55 per cent. of the whole; whereas I am confident it is not less than 65 to 70 per cent. The following is the statement:

OCCUPATIONS OF THE POPULATION OF SPAIN, 1857.

NON-AGRICULTURAL MALE ADULTS.	NUMBER.
Army, Navy and Military functionaries.....	241,335
Officials : State	22,362
Municipal	62,976
Provincial.....	4,693
Nobility	90,081
Clergy.....	478,716
Students	125,000
Advocates.....	5,673
Writers	9,351
	62,338

NON-AGRICULTURAL MALE ADULTS.	NUMBER.
Servants	206,090
Merchants	119,234
Scientific	35,736
Artists and mechanics.....	88,728
Manufacturers	67,327
Miners, (1864)	32,201
Workmen in refining and smelting works, (1864)	9,945
Fishermen, 1866.....	39,440
Seamen in ports, harbors, etc., 1863	11,285
" foreign trade, 1863	16,181
" coasting trade, 1863.....	21,606
Total	1,645,191

Total able-bodied men, 3,803,991. This would leave, at the most, but 2,158,800 agriculturists. At an average of four inhabitants to each able-bodied man, this would imply, at the most, an agricultural population of 8,632,000, which is 55 per cent. of the whole. Add to the 2,158,800 male adult agriculturists about 340,000 female laborers, and we have in round numbers 2,500,009 persons actually employed in agriculture. This number forms less than 16 per cent. of the whole, a proportion that, taking into consideration the rude state of tillage in vogue, would seem entirely inadequate to produce the requisite amount of food for all.

Macgregor (p. 944) publishes the details of a cadastral return of the population for 1826, concerning the correctness of the total sum of which there is perhaps some doubt. The total figure is 13,712,000, while the total of the table of details is but 13,211,301. In this table the agricultural population is placed at 1,836,320 heads of families and others, and 6,777,140 women and children, the first-named figure being 13.9 per cent. of the whole and the latter 65.2 per cent. The details of heads of agricultural families and others are as follows : Proprietors, 364,514 ; farmers (middle men), 527,423 ; laborers, 805,235 ; proprietors of herds and flocks, 25,530 ; and shepherds, 113,628.

I am inclined to believe these proportions to be nearer the truth, and the truth at the present time, than those deduced above.

The discrepancies have doubtless arisen less from any material changes in the occupations of the people than from the fact that in many districts the agricultural laborer often alters his trade during the year ; so that the agreement of two censuses would depend largely upon the time of the year they were taken respectively. (See on this point, L. T., 24, § 9.)

FEMALE LABORERS.

In Galicia and Asturias the number of female laborers is nearly equal to the male. These districts comprise about one-fifth of the population. In Cartagena, province of Murcia, population 380,969, female labor is seldom or never employed for field work. In Minorca female labor is employed hardly at all. In Majorca it is employed. Female laborers are

employed, but not generally, in Guipuzcoa, Basque Provinces, population 162,547. In Biscay, Basque Provinces, population 200,000, all the females work in the fields at times, and female labor is largely employed. In the Provinces of Malaga, Granada, Almeria, and Jaen, population 1,565,979, female labor is hardly at all employed in the cultivation of land, only in gathering olives and cutting grapes. From these and other reports (Land Tenures, Part III), I have ventured to estimate the number of female laborers in Spain at about 340,000, though I dare say the true number is upwards of 500,000.

LAND TENURES.

The laws of 1820 abolished the right of primogeniture and all other species of civic entail (*mayorazgos*); then followed that of 1841 on ecclesiastical benefices, and finally that of 1855, which declared in a state of sale land and house property belonging to the State or appertaining to corporations of towns, beneficence, public instruction, clergy, religious fraternities, pious works, sanctuaries, etc. Like many other reforms which have taken place from time to time in Spain, certain provisions of this one were rescinded, and it was not until 1865 that the Crown lands were finally decreed in a state of sale. It is, however, from the year 1855 that the freedom of Spain from religious and feudal tenures really dates.

When it is considered that these tenures were abolished in France by the Revolution of 1789, in the United States, generally, during the earliest days of their history as independent Commonwealths, and in Prussia in 1820, it cannot be deemed strange that a country which did not succeed in throwing them off until 1855 should have failed to show any signs of progress until within very recent years.

The condition of affairs in 1840 is thus described :

"Mr. Townsend (ii, 238) mentions that the estates of three great lords—the Dukes of Osuna, Alba, and Medina Celi—cover nearly the whole of the immense Province of Andalusia ; and several in the other provinces are hardly less extensive." M'Culloch, p. 837.

"The great estates belonging to the corporations, or towns, are held in common ; and in consequence are wholly, or almost wholly, in pasture." —*Ibid.*

In 1850, we have the following account :

"Among the causes of the defective state of agriculture in Spain are the tenures of land. The unalienable, indivisible *mayorazgos* (entails) are considered as having for a long period comprised, including the property of the Church, about *three-fourths* of the territorial surface of Spain.

"The *Mesta* is another great, although secondary, cause of the neglect of agriculture. This is the name of a great incorporated company of nobles, ecclesiastical chapters, persons in power and members of monasteries, who were authorized to feed their flocks, at scarcely any expense, on all the pastures of the kingdom, and have almost an imperative special code of laws (*Leyes y Ordenanzas de la Mesta*) for maintaining their originally usurped privileges. It holds its courts and has numerous *Alcaldes*,

Entregadors, Quadrilliers, Achagueros, and other law officers. Within the last five years, the *Mesta* has possessed about half of the sheep in Spain." Macgregor, p. 1016.

For lists of the religious establishments and the enormous properties and revenues they absorbed, see pp. 1023-5 of the same work.

As to the condition of affairs at the present time, the bulk of agricultural lands in Spain appear to be still held by wealthy or noble proprietors, who live in the cities and lease them out on half produce, *a la meta*, to indigent peasants. Feudal tenures are indeed swept away, but many of the features of feudalism remain, and it is still the custom in Alicante and perhaps elsewhere, for the metayers to present the proprietors with a certain number of fowls each year. The custom is now voluntary and by no means relished by the owner, who feels bound to make some return; but it serves to indicate the relations between the metayer and his landlord. The metayers on rice plantations in Valencia pay one-third produce. Certain rights of commonage appear to continue. (L. T., 40, § 7.) In Galicia, the "foro" is mentioned so late as September 30, 1870. (Com. Rel., 1871, p. 1008.) The "foro" is a sort of land impost created some eight or nine centuries ago, and continues to be paid annually by the present owners to the descendants of the former proprietors of land. "The importance of this tribute is such that it sometimes absorbs the total productions of the soil; thus it is that two-thirds of it has never been cultivated." (*Ibid.*?) In October, 1873 (Com. Rel., 1873, p. 946), it is stated that the feudal tribute of "foro" had been declared redeemable by the Government.

In fine, Spain may be said to have scarcely even yet emerged from the feudal state. A large portion of her soil is still owned by absentee landlords and rented, partly for money rents and partly *a la meta*. The proprietors seldom sell their properties (L. T., 42, § 10), and there is no compulsion on their part to sell, lease, or otherwise dispose of their property to peasants or others. (L. T., 49, §§ 6-7-8.) But as the law of descent and division is the same that applies to personal property (*Ibid.*, 43, § 2), it is merely a question of time when they will be divided and absorbed by peasant proprietors.

Another drawback is the allodial duty of two per cent. on the sale of lands. (L. T., 31.) There is a government duty of three per cent. on all transfers of property (p. 47, § 13). Whether the allodial duty of two per cent. is added to this, does not seem clear.

But the great fact remains that the feudal system and all entails are abolished; the lands of the religious establishments and the Crown* are sold, the corvée and the *mesta* swept out of existence, small peasant properties exist in large numbers all over the country, and the door is opened to further reform and future progress.

* In 1866 laws were also passed to facilitate the sale of mountainous lands.

LAWS OF SUCCESSION.

Land may now be willed as the owner chooses provided he has no children. In case he has, these are his natural heirs, and the division is in equal parts. He can, however, dispose of one-fifth thereof in favor of his widow, or some particular child, or even of a stranger. Should the property have increased in value since the marriage day of the owner, his widow has a right to the half of the increase (L. T., 19). While this is stated to be the law of Spain, the same authority speaks of the existence (Dec. 7, 1870) of separate codes of law affecting real estate in different provinces. (See pp. 40 and 43.) But this I doubt. The law of descent seems now to be general throughout the land, and to have been based on Novela cxviii of the Roman laws of Justinian.

MORTMAIN.

The abolition of mortmain (law of *desamortizacion*) took place in 1855, but many persons refused to buy church property on account of religious scruples. In 1858 the Pope's sanction was obtained, when the sales were actively continued, the Government giving great facilities to the purchasers. The payments are made one-tenth in cash and the remainder in promissory notes running from one to ten, and in some cases, nineteen years, and secured by mortgage on the property. Owing to these facilities of purchase the biddings have often more than twice exceeded the true market value of the parcels put up. The churches, etc., receive compensation for their lands thus sold, and the nation gains by the operation, what benefit accrues from throwing open lands to peasant ownership and industrious tillage, which had been either entirely sequestered or negligently worked by metayer tenants subject to the church. About \$100,000,-000 have been paid (in Government stock) to these institutions for their lands, and about \$200,000,000 (in cash and mortgages) received from the purchasers. The total payments (for the operation has not yet quite ceased) are estimated at \$125,000,000, and total revenues at \$250,000,000; so that the Government will have made \$125,000,000 by the law of mortmain. The interest on the payments to the religious establishments, which were made in Government securities, was stopped during the Republic, but an order for its resumption was among the first acts of Alfonso XII upon his accession to the throne of Spain in January, 1875.

REGISTRY SYSTEM.

"The sale or transfer of property (land) of every sort is always (now) done by deeds drawn up by a notary and inscribed in the Land Register. Leases of smaller importance are made by contract before witnesses. A tax of two per cent. is paid to the State in cases where property is held (hired?) or transferred; but where a son inherits directly from his father, or *vice versa*, no succession duty is paid. It exists, however, when the inheritance is from any more distant relative and increases proportionately." *Report of Percy Ffrench, First Sec. H. B. M. Legation in Spain.* L. T., 18.

Property is still administered and managed in Spain with great disorder and negligence, and extreme irregularity exists in the registration of leases, etc. This is probably due to the heavy registration, succession and other fees, and attempts to avoid them by neglecting proper formalities. Stamped paper must be used; only a feed notary can draw the papers, and fees attend every step of registration, search or certification. The average cost of transfer is about one and a-half per cent. *ad valorem*. (L. T., p. 44). In other respects the registry system, which has only been in force since 1863, appears to be similar to that which has always existed in the United States.

HYPOTHECATION OF REAL ESTATE.

The very recent abolition of feudal and ecclesiastical tenures, the continued monopolization of the land by the wealthy (L. T., p. —), the newness, the exactions and disorder of the registry system, together with other causes, combine to render difficult the hypothecation of real estate. In cases where these obstacles do not exist, where the title is undoubted and the land held in fee, there is no difficulty in obtaining loans to the extent of one-third to two-thirds the value of the property, at six to ten per cent. per annum. But in most cases it is the landless metayer who desires to borrow and has nothing to offer as security but his growing crops. Upon such a precarious basis, ten to fifteen per cent. is a low rate to charge for interest, and often from thirty to forty per cent. is paid. (L. T., 18). With the means thus obtained numerous small holdings of mountain land (common land sold by Government under act of 1866) have been purchased by the peasantry on seven year annual installments (p. 30). This points to an extension of the same sort of spade culture which is to be seen in the hilly parts of Italy, and to the abandonment of the better but metayer-held lands of the nobility—a tendency that should not exist.

POSITOS.

“*Positos*” are described by Macgregor as a sort of co-operative society to supply seed corn and food in calamitous years, numbers of which have existed all over Spain since the time of Philip II. M’Culloch, however, defines them to be merely public granaries where corn may be warehoused until it is disposed of. The name, which means “depositories,” proves this definition to be the correct one. They have diminished in importance of late years, probably because the fears of occasional scarcity, which, no doubt gave rise to them, have been removed by the construction of roads and railways and a more liberal policy in respect of the corn laws. The peasants and dealers in grain in Castile formerly preserved their stocks in *silos*, or subterranean caves, for sometimes five or six years.

MESTA.

As has already been explained, *Mesta* was a right of common which certain privileged classes possessed, but which is now abolished. It is

said to have originated in the fourteenth century during a famine. This right enabled the privileged owners of large flocks of sheep to drive them over village pastures and commons there to feed at pleasure, and to compel the owners of cultivated lands, which lay in the line of their migrations, to leave wide paths for the pasturage of the flocks. Nor could any new enclosures be made in the line of their march, or land that had once been in pasture be cultivated again until it had been offered to the *Mesta*, or corporation of flock-proprietors, at a certain rate! It is easy to perceive that with the continuance of such monstrous privileges as these it would only be a question of time when all the cultivated lands would be turned into pastures, and all the pastures fall into the possession of the *Mesta*. It was a great reproach to Spain that this feudal privilege existed so long as it did, but its recent abolition is equally an undoubted sign of progress.

NUMBER AND SIZE OF FARMS.

The number of farms in Spain in the year 1800 was but 677,520 in the hands of 273,760 proprietors and 403,760 tenant farmers. (Martin.) The number of landed properties, rural and urban, in 1857, was 2,433,301 (L. T., 46), and the number in 1870 was 3,612,000. (*Ibid*, 19.) The proportion of rural properties in late years is not stated by these authorities, nor are the tenures by which they are held set forth. The number of tenant farmers had increased from 403,760 in 1800 to 595,635 in 1857, and probably upwards of 600,000 in 1870; but meanwhile and particularly since 1855 the number of properties had increased, both by the subdivision of land and the industrial absorption of mortmain and Government lands and village commons. The bulk of the peasant farms will average between ten and fifteen acres. There are many vineyards of not over one-eighth of an acre, and on the other hand, many large properties, cultivated and uncultivated. The opinion appears to prevail among late observers that from one-fourth to one-third of the cultivated land is held by peasant proprietors (L. T., 50 and ?), and that the rest is cultivated by agricultural laborers, of whom there were 2,354,110 in 1857, in the employ of large owners, or farmed out to tenants for a money rent, or *a la meta*.

SYSTEM OF CULTURE—SEEDING AND FERTILIZERS.

Compared with other countries west of Russia and the Orient, the system of culture in Spain is still very backward. There are a few garden spots in Spain—the *huertas* of Granada, Murcia, and Valencia—but such exceptional instances of careful culture are to be found in the worst cultivated countries, even miserable Egypt possessing a Faioum. The general aspect of Spanish agriculture, until very lately, was much the same as it was a century ago when Arthur Young visited Spain. The great and numerous barrens he described are being brought under cultivation, and in that respect Spain is much improved; but the mode of cultivation is only now undergoing change. The forests were, centuries ago, burned for the few fertilizing materials to be obtained from their ashes, while

their annual efforts to increase were kept down by a similar treatment of their undergrowth and copses. Hence, barrens, afflicted with alternate droughts and floods. The system of agricultural irrigation was mainly a legacy from the exiled Moors, since whose time it had been but little enlarged. The means used for raising the water are the familiar *sakye* and *shadowf* of the Orient, the *sakye* being known under the name of *noria*. (L. T., 57.) The water obtained by these laborious means is known as *agua de arte*; that by diverting the course of streams as *agua viva*, or running water. (C. R., 1868, p. 373.)

As going still further to show the indebtedness of even Modern Spain to Moorish industry, it has been stated that the best olive trees in Spain to-day are those left by the Moors; while even the stone fences and other enclosures left by them are still performing the service for which they were constructed a thousand years ago.

Rotation was, until recently, very little followed in Spain, and even the fallow system, though in general use, was in many parts ignored and the ruinous one of exploitation, by a constant succession of the same sort of crops, employed in its place. (C. R., 1871, p. 1037.) Even two and sometimes three different crops were obtained from the same piece of ground in one year; though as Young and other writers have shown, with no aggregate increase of product, but on the contrary, diminution. Corn, root, or pulse crops were frequently sown in olive groves and vineyards to the mutual detriment of both tree or vine and crop. In the Provinces of Malaga, Granada, Almeria and Jaen, mention is made of a three-field system of, 1. Wheat, barley or beans; 2. Fallow; 3. Pasture on the unirrigated lands; and also of the continuance, so late as November, 1869, of village commons (*dehesas de proprios*) for cattle,—both of them wretched and antiquated features of agriculture. But since 1855 all these features have been undergoing change, and the *dehesas de proprios* were probably in a moribund state in 1869.

The quantity of seed used is uncertain. It is stated by M'Culloch that the *fanega* (about $1\frac{1}{2}$ bushels) is the measure of seed-corn commonly sown upon a *fanegada* (about $1\frac{1}{2}$ acres) of land, and hence, the similarity of terms. This is probably a true explanation with regard to the terms, which must, however, have arisen from the results of favorable sowings; for the practical fact is still that not less than two bushels are generally sown to the acre of wheat, the staple corn of Spain.

In the use of fertilizers the same recent improvement is to be observed as in other respects. Previous to 1855, beyond the fertilizers mentioned by Arthur Young nearly three-fourths of a century before, there does not appear to have been any improvement. These consisted of wood-ashes obtained from the burning, not of forests, for they had been burned long before, but of copses and undergrowth. Near some of the large cities poudrette seems to have been prepared, but the use of this fertilizer was not common.

Since the ameliorations, which date about the year 1855, Peruvian

guano appears to have been largely imported into Spain. I have the statistics by quantities for only the years 1852 to 1856 and 1863 to 1867, inclusive; but these will serve to show the extent of the movement, which first began in 1852:

IMPORTS OF PERUVIAN GUANO INTO SPAIN.

YEARS.	KILOGRAMS.	TONS.
1852 to 1856, inclusive	49,115,446	48,247*
1863	39,514,969	39,209
1864.....	6,437,943	6,324
1865....	11,956,769	11,746
1866.....	46,872,576	46,043
1867.....	37,666,000	37,000

To show the relation which these quantities bear to the world's consumption of guano, it may be stated that the 48,000 tons imported in 1852 to 1856 formed but $2\frac{1}{2}$ per cent. of the world's consumption of Peruvian guano; while the average annual quantity of 28,000 tons imported during the years 1863 to 1867 formed $7\frac{1}{2}$ per cent. of the world's consumption, which was 370,000 tons per annum during that interval. (For details of the consumption of each country, see Com. Rel., 1867, p. 361.)†

The extent to which fertilizers are now being used in at least some parts of Spain, may be judged from the fact that the U. S. Consul at Valencia reported in 1871 that the ground in that district was being burned up by an immoderate use of guano!

AGRICULTURAL IMPLEMENTS.

There seems to have been no improvement in respect of agricultural implements since the days of Arthur Young. The corvée is abolished and the absentee landlords of vast estates, of whom he has so bitterly complained, are things of the past; but the old Roman plow, with its wooden mould-board, without a bit of iron upon it (Arthur Young, ii, p. —), and its four or five inch blade (Com. Rel., 1871, p. 1037,) remain. Indeed, even the plow is rarely met with in some provinces (C. R., 1866, 219), the "laya," or two-pronged fork, and the spade being used in its place (L. T., 37 and 51).

Until within a very few years, agricultural machinery was wholly unknown in Spain. The corn was left in the fields for lack of barns (Young); it was threshed by driving mules over it; it was winnowed by throwing it in the air (M'Culloch); and most frequently it was ground by hand rather than by wind-mills or other machinery. (*Ibid.*)

* Quantities *exported* from Chincha Islands to Spain, 1852-57.—App. Cyc., viii, 529.

† The average annual consumption by the United States before the war is set down by this authority at 40,000 tons; while the actual imports into the United States from 1850 to 1861, inclusive, were 954,989 tons, an annual average of double the quantity. However, a portion of this guano came from other places beside Peru. For complete statistics on this subject, see U. S. Com and Nav., 1867, p. xlvi.

Fanning machines are now in use near the towns ; the thresher has been introduced ; and the first American mower and reaper was imported a year or two ago.

English implements are too heavy for Spanish hands (L. T., 29), and many that have been imported are left to rot for want of men able to handle them. The American implements are much preferred.

On the whole, it may be stated that Spain is but on the threshold of a change from the inefficient implements of antiquity to the powerful machines of modern agricultural progress.

DOMESTIC ANIMALS.

Since the destruction of her forests Spain must have lost much of the pastoral character which undoubtedly distinguished her to a great degree under the rule of the Moors. There are now, properly speaking, no meadows (grass lands) in Spain. Young noticed a single patch during his journey in 1787 ; but late observers do not speak of any at all. (L. T., 28, and elsewhere.)

Said M'Culloch, about forty years ago :

"The Pyrenees, the hilly parts of Biscay and the Asturias, the vast plains of Andalusia, the two Castiles, Estramadura and Leon, are almost wholly in pasture ; and in some parts the traveler may journey for many miles without seeing either a house or an individual. In point of fact, however, half the pastures really consist of heaths, or of neglected tracts covered with thyme and other wild herbs, that are at present next to worthless. There are few or no irrigated meadows, and hay is seldom or never prepared for fodder."

Except that portions of this waste land have of late years been reclaimed, this description will answer for to-day.

The following table exhibits a comparison of the number of domestic animals in Spain in 1808 and 1865, respectively, from which it will be seen that there has been a small increase of horses, a considerable increase of mules and asses, a decrease of horned cattle, sheep and goats, and an increase of swine.

It should be stated that a great many incomplete and incorrect statements on this subject have appeared in statistical works.

The authorities for the figures given in the text are, for 1808, the report to the Cortes quoted by Maegregor, and for 1865 the report of Senores Feliciano Herreros de Téjada and Victoriano Ballaguer to the Statistical Congress of the Hague.

DOMESTIC ANIMALS.	YEAR 1808.	YEAR 1865.
Horses	538,926	680,373
Mules and asses	1,079,002	2,319,846
Horned cattle.....	3,694,156	2,967,303
Sheep and lambs.....	24,916,212	22,468,969
Pigs	3,628,283	4,351,736
Goats.....	6,916,890	4,531,228
Camels	No data.	3,104
Poultry	"	No data.

In some parts of Spain there are no inclosures (fences), and cattle cannot be kept without injury to the crops (L. T., 28). Of late years a new and considerable trade has sprung up between Spain and England, consisting of exports of horned cattle and of eggs from the former to the latter. The following table shows the development of this trade since 1860:

**QUANTITIES OF ANIMAL PRODUCTS IMPORTED FROM SPAIN PROPER
INTO THE UNITED KINGDOM ANNUALLY SINCE 1860.**

Calendar Year.	Horned Cattle. Number.	Eggs. Great Hund'ds	Calendar Year.	Horned Cattle. Number.	Eggs. Great Hund'ds
1860.....	3,573	.....	1867.....	13,816	93,064
1861.....	8,596	123,842	1868.....	15,985	116,895
1862.....	6,787	139,628	1869.....	19,589	96,131
1863.....	6,566	78,818	1870.....	27,271	112,638
1864.....	8,281	54,465	1871.....	19,612	184,114
1865.....	8,209	31,328	1872.....	15,462	151,296
1866.....	8,490	80,055	1873.....	19,888	151,564

CHIEF ARTICLES OF NATIONAL DIET.

The Spanish peasantry is even to-day but wretchedly fed; what it starved upon in the long and terrible ages of Ecclesiastical domination and feudal tyranny, defies all sober description. (On the general subject of peasant wretchedness in the Middle Ages, see *The Earth as Modified by Man*, by Marsh; New York, 1874, pp. 5-7, *the foot notes*.)

The usual fare is bread, porridge and pulse. Chestnuts and other mast also form articles of diet in the few wooded districts which the country possesses. (L. T., 24.)

The following accounts relate to the years 1869 and 1870: In Guipuzcoa, the nurture is beans, cabbages, milk, chestnuts, and Indian corn cakes in place of bread. Meat is scarcely known; occasionally a small piece of bacon is attainable. (L. T., 38.) In Biscay, the fool is "puchero," a vegetable soup composed principally of cabbage and beans. Lard is occasionally added, and sometimes even a scrap of meat or dried codfish. (*Ibid*, 40.) The beverage in Asturias and Guipuzcoa is cider; in Biscay, it was "chacoli," a thin mixture of wine and water. Of late years this is becoming replaced by the common wine of Navarra, etc. In Majorca, the diet is vegetables and bread. (*Ibid*, 32.) In Minorca, it is potatoes. (*Ibid*, 35.) In Alicante, it consists of a pottage of rice, beans and oil, with barley or maize bread, and occasionally a little codfish or sardine; but butcher meat is seldom enjoyed. (*Ibid*, 51.) In Valencia, the usual food is, at morning, a pilchard (salted) and bread; at noon, a stew of beans and potatoes, with pieces of bacon; and at night, the same as at morning or noon. These articles of diet are usually supplemented with thin wine and sometimes fruit. (*Ibid*, p. 54, and private information.) In Galicia and Asturias, the food is potatoes and vegetable soup, condimented with lard; also bread of rye or maize; sometimes a piece of pork. (*Ibid*, 20.) In Andalusia, corn bread; seldom meat. (*Ibid*, 49.)

EFFECTIVENESS OF LABOR.

In Galicia and Asturias a good workman is expected to plow about one-fifth of an acre per diem. (L. T., 20.) One laborer only is required to every six acres yearly. (*Ibid*, 24.) One man with two horses or mules can plow in two days six *fanegadas* or 1.237 acres, equal to about five-eighths of an acre per day. (L. T., 53.) Consult also pp. 28 and 50 for similar, though less definite statements.

This extraordinary degree of inefficiency is not the result of indolence. All writers, from Arthur Young to the present time, agree in giving the Spanish peasantry the credit for untiring industry and perseverance. It is rather the product of weak and insufficient food and lack of comfort. (See Arthur Helps on *Brassey*.)

CONDITION OF THE PEASANTRY.

Galicia and Asturias, 1870. Their houses of rough stone—nostenly consisting solely of the ground floor—are poor and dirty, the same roof frequently giving shelter to the proprietor's family and to the produce of his farm, including his oxen, cows, pigs and fowls. Some of the better conditioned of the same class construct with wood an upper story to their houses, which serves for their dwelling and granary, in which case the lower part is occupied entirely by the live stock. (L. T., 20.)

Majorca, 1870. Their houses are wanting in accommodations. Their food is frugal; their dress modest. (*Ibid*, 32.)

Minorca, 1870. Their cottages are of a cleanliness that is remarkable, being whitewashed inside and outside twice a month. Their clothing, bedding, etc., are also very clean. Their habits are moral and religious. All disputes settled by arbitration. (*Ibid*, 32.)

Guipuzcoa, 1870. They are badly housed and have none of the comforts of the English. The kitchen is black, dirty and full of smoke. They dress in home-spun flax. (*Ibid*, 38.)

Alicante, 1870. They are clothed in the linen shirt and short, wide trousers of their Moorish ancestors. (L. T., 51.)

Valencia, 1870. The peasants live in small stone or brick houses of one story, and in mud huts with thatched roofs. Their donkeys and pigs occupy a shed at the back of the house; but all pass through one door. (L. T., 53.)

Biscay, 1870. They are housed in stone buildings with no comfort and scarcely decency. Stables for oxen and pigs on the ground floor; sleeping apartment above. Results: dirt, discomfort and fever. Home-spun clothes, the men cloth, the women cotton and flannel from abroad. Habits thrifty. The tenant farms descend regularly from father to son by force of custom. (L. T., 41.)

Andalusia, 1870. The great mass of the country population are hired laborers. The Spanish peasantry are generally poorly housed, fed and clad. The country is still insecure, and abductions for ransom by

banditti are not unfrequent. (*Ibid*, 45.) The British Consul at Cadiz, under date of February 15, 1865, says :

"Property and life are much more secure throughout the country than they were twenty years ago. Robberies are very much more rare; the police, and especially the rural police (*gens d'armes*) in the provinces, are in general respectable officials, and are becoming useful and effective. In numerous small towns (I speak of Andalusia especially) they are active, earnest and conscientious local magistrates, quietly doing a great deal of good." (B. C. R., 1865, 96.)

The travelers' guide-books of recent dates, which are pretty good authority on the subject of personal security, agree in stating that brigandage and all molestation on the highways have wholly ceased. This happy result is attributed indirectly to the general improvement of affairs in Spain, and directly to the *guardas civiles*, a body of police or *gens d'armes*, selected from the veteran corps in the armies, and composed of men noted for high moral traits and physical pre-eminence.

Concerning the tendency of thought among the peasants, it is stated that :

"Socialistic and communistic doctrines are spoken and spread in Andalusia where the peasantry, though very bigoted, are argumentative and of an independent turn of mind. If ever Protestantism, in some shape or other, be put before the Andalusian, it will spread like wildfire, for it exactly suits his mode of thought." (L. T., p. —.) Socialism is gaining ground among the laboring classes of Andalusia. (*Ibid*, p. 51.) "Spain has a peasantry superior to that of most European countries; but no middle class."—*London Economist*, January 5, 1867.

The military conscription, which is compulsory in Spain, is perhaps, the most oppressive institution against which the peasant has now to struggle.

ILLITERACY AND EDUCATION.

The following table shows the condition of the population of all Spain in these respects in the year 1860 :

Classes.	Males.		Females.		Total.	
	Number.	P. C.	Number.	P. C.	Number.	P. C.
Able to read and write.	2,414,015	15.4	715,906	4.6	3,129,921	20.0
Able to read only.....	316,557	2.1	389,221	2.4	705,778	4.5
Not able to read or write	5,034,936	32.1	6,802,846	43.4	11,837,782	75.5
Total.	7,765,508	49.6	7,907,973	50.4	15,673,481	100.0

Owing to the ecclesiastical policy popular education showed no perceptible progress in Spain until about the year 1868, since which time it has made considerable strides. (A. G. Fuertes, U. S. Consul at Corunna, October 1, 1873.)

In 1797 only 393,126 children attended the primary schools of Spain and these were very imperfect.

Up to 1808 public education was entirely in the hands of the ecclesiastics.

Until 1838 there was scarcely any progress.

In 1848 the number of pupils attending all the schools was 663,711.

On January 1, 1861, the number was 1,046,558, as follows : Private schools, superior, elementary and mixed, 3,800 with 134,383 scholars ; public schools, same classes, 18,260, with 912,175 scholars.—*Martin.*

It is believed that since 1861 the number of pupils has fully doubled. For a summary of the extremely liberal provisions for public education since 1861, consult U. S. Rep. Com. Education, 1871, p. 477.

WAGES.

Years 1787-89. (Arthur Young.) Wages near Esparagara, spinners, six cents a day ; carders, eleven cents ; lace-makers, nine cents and food. Near Gerona, laborers twenty cents, without food. Near Barcelona, laborers, twenty-five cents a day, without food ; highest, thirty-three cents, lowest, twenty-two and a-half cents.

Year 1864. (Com. Rel., 1865.) Wages in Bilboa, day laborer, 20c. @25c. ; mechanics, 40c. @45c., without food.

Year 1864. (Com. Rel., 1865.) Since 1854, a notable rise in wages in Bilboa : Day laborers now, 55c @70c. ; mechanics, 95c. @ \$1.25 without food.

Years 1869 to 1871. (Land Tenures, pp. 20, 24, 32, 38, 40, 45, 51 and 53. Com. Rel., 1871, p. 1010.) The following table gives the wages current in various provinces of Spain :

DAILY WAGES OF AGRICULTURAL LABORERS, WITHOUT FOOD, 1870-1.

PROVINCES.	MEN.	WOMEN.
Galicia and Asturias.....	24 @ 28 cents.	14 @ 20 cents.
Asturias	25 @ 35 "	.. @ 20 "
Majorca	20 @ 30 "	10 @ 15 "
Minorca .....	.. @ 24 "	.....
Guipuzcoa .....	.. @ 30 "	16 @ 20 "
Biscay.....	.. @ 40 "	20 @ 25 "
Andalusia.....	40 @ 50 "	.....
Ilicante.....	25 @ 30 "	10 @ 15 "
" spade work	40 @ 50 "	.....
Valencia	25 @ 35 "	.....
Murcia .....	.. @ 28 "	.....
Spain generally *.....	30 @ 50 "	.....

* This last and probably unreliable line is from the C. R., 1871, p. 1010. The same authority quotes mechanics' wages throughout Spain at 40@75 cents per day, which is undoubtedly below the truth. It states the working hours in summer at fourteen, and in winter ten, which is probably correct.

DAILY AGRICULTURAL WAGES, WITH FOOD, 1870-1.

	MEN.	WOMEN.	Boys.
Asturias.....	... @ 12 $\frac{1}{2}$	... @ 07 $\frac{1}{2}$	.....
Majorca.....	... @ 10	... @ 05	.....
Minorca.....	... @ 15	.....	.....
“ harvest, long hours.....	36 @ 45	.....	.....
Guipuzcoa *.....	12 @ 16	.....	05 @ 06
Biscay *.....	... @ 20	.....	03 @ 04
Andalusia.....	... @ 20	.....	.....
Murcia .....	... @ 14	.....	.....

From these tables it would appear that in some places probably throughout Spain, wages continued, from the close of the last century to about the year 1855, without material change; but that since the last named date they have doubled. Whether this is due to the great ameliorations set on foot at that time in Spain, or to other causes cannot be determined in this place.

EMIGRATION.

During the years 1840 and 1841, at least 20,000 agricultural laborers left Valencia for Algiers. (*Macgregor*, 1015.) The immigration into the Argentine Republic (Buenos Ayres), which up to year 1862 was less than 7,000 persons a year, rose to between 10,000, and 12,000 persons in 1863 and 1864, and to over 40,000 persons in 1870. About 15 per cent. of these persons in 1864 and 1870 were from Spain. (*Private information*.) There are now nearly forty agricultural colonies in the Republic. Of these, twenty have been formed since 1870. Many of the agriculturists are from Spain. The immigration of Spaniards into the United States, from 1820 up to and including 1870, was 23,504, and since 1870 has been as follows :

1871.....	558	1873.....	546
1872.....	595	1874, about.....	500

Large numbers of Spanish emigrants go to Cuba and South America, whence a few afterwards find their way to this country. In 1870, there were 3,764 natives of Spain residing in the United States.

I know of no statistics which show the total emigration outward from Spain, but it must be considerable. In Galicia and Asturias it is reckoned at 60,000 to 70,000 per annum, or 2½ per cent. of the population. (L. T., 20). One half of those from Asturias go to Spanish colonies. (*Ibid*, 24.) From Murcia 1,000 persons a month during six months of the summer and fall of 1869, went to Oran, coast of Africa. (*Ibid*, 28.) In the Balearic Isles emigration is not common, and the military conscription the principal cause. (*Ibid*, 32.) From Guipuzcoa there is a considerable emigration mainly to South America. The emigrants go chiefly by way of France. Cause, want of work. (*Ibid*, 38, 39.) From Biscay a large

* Guipuzcoa ; boys \$20@\$30 a year, with food and lodging. Biscay, \$15 a year, same.

emigration, which has been gradually increasing during the past fifteen years, occurs to South America, chiefly to Buenos Ayres and Montevideo. The local government has not been able to restrain this drain of population. (*Ibid.*, 40.) From Andalusia emigration is rare, chiefly from Almeria and only in years of great drought. (*Ibid.*, 45.) From Alicante, in years of drought the emigration to Africa is considerable. Many return when the weather (and, I suppose, their fortunes) improve. In good years they do not emigrate. (*Ibid.*, 51.) The Valencians rarely emigrate. From the towns on the coast they frequently go over to Algiers and Oran for the harvest, and afterwards return home. (*Ibid.*, 53.) The army and navy in the West Indies, and especially Cuba, constitute a regular drain upon the population by robbing it of its most energetic elements.

The American Consul at Corunna, under date of September 30th, 1870, says that 140,000 emigrants have left that district (in Galicia), for South America and Cuba within a few years, and that 4,000 to 5,000 more bound to the same ports sail yearly from Corunna. "The agents at this port are always willing to offer them passage, to be paid in small installments. Repeated applications have been addressed to this Consulate regarding the emigration to the United States. The applicants are generally all handsome and remarkably healthy young men, used from their infancy to farming and field labor, as well as to mechanical pursuits and are withal of an excellent moral conduct and pleasant disposition, but as they are too poor to pay for their passage, I could offer no inducements to them." The same Consul writes in 1873, that he had induced a Liverpool shipping house to send some steamers to Corunna for the United States, and that they had arrived and taken out to New Orleans a large batch of respectable young field laborers.

PRICES AND RENTS OF LAND.

It is almost impossible to make anything out of the fragmentary and loose evidence on this point contained in Arthur Young and *Land Tenures*, the best authorities for the latter half of the last and present centuries, respectively. Roughly speaking, arable land seems to be worth at the present time from \$70 to \$125 an acre, and in the *huertas* of Valencia as high as \$500 to \$1,000 an acre, the latter price being quite common. Rents range from 3 to $3\frac{1}{2}$ per cent. on the value of the property (L. T., 41), and are stated to be on all the lands in Spain, including, I suppose, the barrens, from \$2 to \$4 an acre (L. T., 18), and on the irrigated *huertas* of Valencia, \$20 to \$35 (*Ibid.*) the common rate being about \$30 an acre. (L. T., p. 54.)

These prices and rents do not appear to differ materially from those quoted by Arthur Young, nearly a century before. (See Young, ii, p. 326 and elsewhere.)

I take it that, at the rents quoted above, the tenants pay the taxes; yet as the following passage occurs in *Land Tenures*, p. 56, relating to Valencia, this point does not seem certain :

"The taxes on landed property are for account of the landlord, and if the Government taxes the land, for a larger sum than it really produces, then the landlord pays only to the extent of the rent and the surplus is paid by the tenant and is denominated as colonization." Spoliation were a better name.

TAXES.

Transfer and succession duties on land have already been adverted to. Although there is some discrepancy in the accounts, all agree in representing these dues as exceedingly onerous.

"The cost of registration is, in the first place, a Government transfer duty of 3 per cent. on the price in cases of sale or barter; 10 per cent. in cases of donation *inter vivos* (during life), and from 1 to 10 per cent. on successions, according to the nearer or remoter degree of relationship between the deceased proprietors and the heirs; inheritance from ascendant to descendant is free of duty, and on a legacy to very distant relations or to mere friends, being strangers in blood, the duty is 10 per cent. The Registrar's fee varies according to the length of the deed inscribed, but it never exceeds 3 per mil (3 cents on \$10) on the price or value of the property." (L. T., 44.)

Such heavy taxes and fees would seem to amount virtually, to a prohibition on the sale of land and must have very injurious effects upon agriculture.

The taxes levied in Spain are general, provincial and municipal. (Com. Rel., 1856, p. 56.)

The municipal taxes consist partly of octroi duties. For example, in Bilboa and possibly all over the country, the octroi duties are: ale 2 cents per pound; brandy, 4 cents per pound; oil, 20 cents per arroba of 28 pounds; salt, 30 cents per fanega of 110 pounds, beside others. (Com. Rel., 1865, p. 190.) The Galicians are taxed on almost everything they possess in the way of property: land, labor, food and raiment. (Com. Rel., 1871, p. 1008.)

Similar charges are exacted in Cadiz and on foreign products which have paid duty as well as on domestic. (Com. Rel., 1866, p. 222.)

Heavy taxes are also spoken of in Valencia. (L. T., 54, § 13.)

The General Government levies export duties (Com. Rel., 1873, p.; 961) also import duties, direct taxes on land, mines, industries, commerce, mortgages, excise, tolls, stamps, railway passengers, and miscellaneous. It derives revenues from the following monopolies: tobacco, salt, gunpowder, lotteries, mints, military establishments, post office and miscellaneous, and from the following domains: mines, property of the State, clergy and provinces, besides a revenue from the colonies. The total annual revenues of the General Government during the period 1865-70 were estimated in the budgets at between \$107,000,000 and \$138,000,000 per annum. This would amount to an average of about \$7 per capita of population.

If the provincial and local taxes be added to these, the total bur-

den of taxation would be exceedingly onerous—especially when the industrial condition and efficiency of the country, as compared with other countries at the same period, is taken into consideration.

"The direct tax on real property, on agricultural produce and on cattle, has, during the last twenty years, nearly doubled, throughout the whole of Spain.

1846 to 1848,	it amounted to	\$12,500,000.
1849 to 1855,	" "	15,000,000.
1856 to 1857,	" "	17,500,000.
1858 to 1863,	" "	20,000,000.
1864 to 1866,	" "	21,500,000.

The same tax levied by the local authorities throughout Spain, for provincial and municipal purposes, has risen, during the same period, from \$1,750,000 to \$4,484,585." (Br. Con. Rep. 1866-5, p. 375.)

INTEREST.

In the year 1545, Charles the Fifth fixed the legal rate of interest in Spain and the Low Countries at 12 per cent. (*N. Y. Social Science Review*, 1865, pp. 362-3.) From that time until toward the close of the last century, the market rate of interest in Spain continued to fall, not so much from increased profits or security as from an increasing absence of opportunities for the investment of capital. This is proved by the fact that while generally the market rate of interest fell, the rate on Government securities rose.

At the time of Arthur Young's travels the market rate on landed security in Catalonia was 8 to 10 per cent.

Since that time the usury laws have been entirely abolished, and now interest is left free to be determined by the contracting parties. (L. T., 24.)

The prevailing rates on landed security about the year 1870 were from 4 to 5 per cent. per annum in Biscay and the Balearic Isles, the two extremities of Spain (L. T., 31, 37, 40), to 10 or 12 per cent. in Murcia. (*Ibid.*, 28.) In the rest of the provinces, and Spain generally, it appears to be from 6 to 10 per cent. (*Ibid.*, 18, 20, 24, 44, 50, 53.)

On the security of growing crops, or personal security the rates are most frequently 30 to 40 per cent., though of course they vary with the degree of risk in each case. (*Ibid.*, 18, 24, 44.)

According to the quotations of the Madrid Bourse, at the close of the year 1874, Government securities were at prices that yielded interest at the rate of from 12 to 20 per cent. per annum.

CODE OF LAW—CREDIT—DEBT—EXECUTIONS.

"The habits, customs, laws, have accumulated from the earliest ages,—Gothic, Christian, Jewish and Moorish,—forming an inextricable web which no legislator has attempted to unravel. Codification has been often talked of, and even attempted, and as yet produced nothing. The consequence is that most Spanish proprietors are perpetually involved in law

suits, which are lost and won, and lost again, going from one province to another and appealing to different courts and tribunals, one after the other.” *H. B. M. Sec. of Leg. Percy Ffrench, Madrid, December 7, 1870.* (L. T., 19.)

For organization of courts of law and proceedings on judgments and evictions, see L. T., 26.

There are no special courts of bankruptcy. (*Ibid.*) “No questions are submitted to jury.” (*Ibid.*)

Agricultural banks on the German plan have been tried but failed. (L. T., 55.) The system of legal procedure against debtors is the great drawback to credit based upon land. Even lending money upon mortgage is dangerous. (L. T., 44 and 47.) In many places money on land is only to be had on a sale *á retro*, or *á remoré* (L. T., 47), which seems to be a sale with power of redemption.

The laws give the landlord to whom rent or allowances for deteriorations are due, a preference over other creditors to the extent of the cattle, household effects and other moveables found upon the property (L. T., 26, 34, 38 and 48); but not the mules, horses, plows, or carts; which appear to be exempt from execution. (*Ibid.* 51.)

A custom is said to exist in Valencia which is peculiar, and as it may be common elsewhere in Spain, and has a bearing on the tenure of land and security, credit and interest, I insert an account of it here:

“When an eviction occurs (generally a rare thing in the agricultural parts of Spain), if the landlord does not pay the colonist or tenant the value of the buildings (erected by the latter), the tenant pulls them down and carries away the materials; this, however, rarely happens.” (L. T., 56.)

COMMON ROADS.

“Owing to the badness of the roads and their unfitness for carriages, the principal carriers of merchandise are the *arieros*, or muleteers, who traverse the country in all directions along beaten tracks, many of which are accessible only to them. * * * Three-fourths of the entire inland traffic in corn is carried on by their means. Recently, however, wagons have begun to be introduced.” (M’Culloch, 11, 839.)

This was the condition of affairs described in 1844.

Under date of July 1, 1865, the British Secretary of Legation, at Madrid, wrote as follows:

“Even the few main roads (common roads) which exist, are insufficiently provided with bridges, and it is not an uncommon sight to see eighty or ninety “carros” or country carts laden with agricultural produce, detained on the banks of a flooded river until able to ford, sometimes for three or four days. * * * Fifty years ago the internal communication was entirely carried on by means of mules, and few, if any roads existed.” (*Br. Rep. Sec. Leg.* 1866, p. 184.)

COMMON ROADS IN 1860.

	KILOMETRES.	MILES.
First class.....	9,097	5,640
Second "	1,550	961
Third "	629	390
Total	11,276	6,991

"Also in course of construction 4,276 kilometres or 2,651 miles. Amount expended on roads in 1861 and 1862, \$14,735,829." (*Ibid.*)

Since the conclusion of the civil war, the Government has constructed upwards of 10,000 miles of turnpike roads, exclusive of Biscay, where the roads have been built by the local authorities. (Br. Con. Rep. 1865, p. 83.)

A better view of the progress that has taken place is afforded by the following :

TABLE SHOWING THE LENGTH AND CONDITION OF THE VARIOUS CLASSES OF COMMON ROADS IN SPAIN IN THE YEAR 1867.

CLASSES.	KILOMETRES.	MILES.
First class roads	7,339	4,550
Second " "	9,566	5,931
Third " "	17,766	11,015
County "	4,540	2,815
Total.....	39,212	24,311

Of the above roads 12,342 miles were built, 2,087 miles in course of construction, and 9,882 miles projected in 1867. (Br. Stat. F. C. xii, 292.)

CANALS AND SLACK-WATER NAVIGATION.

Since the destruction of the Spanish forests, such of the rivers of Spain as were navigable before, were rendered unnavigable. Of these only the Tagus and Guadalquivir had been rendered partly navigable up to the year 1844. (M'Culloch.)

In 1871, owing to recent improvements in the river channel, vessels drawing from 16 to 18 feet of water could ascend the Guadalquivir to Seville. (C. R. 71, 1028.)

I have no other advices with respect to the progress of slack-water navigation in Spain. Of the canals of Spain, glowing accounts in general terms are to be found in many descriptions of the country (*e.g.* Appleton's Cyc., xiv, 805, Old Ed.), but I cannot find sufficient basis for them. There appear to be but three canals of any importance in Spain, and the aggregate mileage of the three is not over 300. These are 1. The Ebro Canal, in Arragon, from Tudela to Santiago, 41 miles below Saragossa. It was built in the reigns of Charles III, IV and V, is about 85 miles long and is navigable by barges, and used also for irrigating purposes. 2. The canal in Old Castile from Segovia, past Valladolid and Palencia, to Aguilar del Campo, and thence to the Bay of Biscay, with a way branch

to Rio Seco and another to Bourgos ; commenced in the year 1753. 3. The Urgel Canal in the Gerona district of Catalonia. These canals are also navigable for barges. I do not find any other navigable canals of importance, and to say that the aggregate navigable canals of Spain are less than 500 miles in length would probably be largely within the truth.

RAILWAYS.

The following is a tolerably complete list of all the railways in Spain at the close of the year 1872, omitting branches and turn-outs :

RAILWAYS.	MILES OPENED.
* Madrid to Saragossa and Madrid to Alicante.....	885
* Saragossa, Pamplona and Barcelona	385
* Barcelona to France <i>via</i> Figueras.....	109
* Northwestern Railway, Palencia and Corunna, Palencia and Leon <i>via</i> Gijon.....	158
* Medina del Campo to Zamora and Orense to Vigo (Medina to Zamora finished; Zamora to Orense not begun; Orense to Vigo unfinished).....	56
* Cordova to Seville.....	81
Seville to Cadiz about	80
Branch to Moron about.....	20
* Cordova to Malaga	
Branch to Antequera.....	184
Branch Loja to Granada.....	
* Lerrida to Reus and Tarragona.....	50
* Aranjuez to Cuenca, 80 miles unfinished.....	
* Aranjuez to Toledo.....	25
* Santiago, 27 miles unfinished.....	
* Urgel Canal Railway.....	33
* East Coast Railway, Almansa† to Valencia and Tarragona	255
Tarragona to Barcelona.....	80
Madrid to Avela 40 miles, Avela to Medina del Campo 50 miles, Medina to Palencia 50 miles, about.....	140
Cordova to Alcazar (on Madrid and Alicante Railway), about.....	100
Badajos to Manzanares (on last named Railway), (this line connects with Lisbon, Portugal), about.....	250
Palencia to Burgos and Miranda, about.....	100
Bilboa, Miranda and Saragossa, about.....	150
Palencia and Santander, about.....	100
Barcelona and Gerona, about	60
Granollers to Junction with last named Railway, about.....	25
Barcelona and Rèus, about	80
Miranda, Vitoria, Pamplona and Alfara, about	100
San Sebastian to Fuentarabia, about	20
San Sebastian, Guipuzcoa and Alisasua, about	50
Cartagena, Murcia and Chinchilla, about.....	150
Cordova to Belmez.....	45
Total miles opened.....	3,771

* Subsidized by Government.

† *I.e.*, from near Almansa on the Madrid and Alicante Railway.

The first railway, $15\frac{1}{2}$ miles in length, was opened in 1848 from Barcelona to Mataro on the line now completed from Barcelona to Gerona. The following table shows the progress made from time to time since that year :

CLOSE OF THE YEAR.	MILES OPENED.	CLOSE OF THE YEAR.	MILES OPENED.
1848	$15\frac{1}{2}$	1862	1,694
1850	17	1863	2,208
1856	326	1864	2,525
1857	418	1865	2,982
1858	529	1866	3,184
1859	$713\frac{1}{4}$	1870	3,380
1860	1,191	1872	3,711
1861	1,475	1874	4,100

From this table it will be observed that from 1848 to 1860, inclusive, a period of thirteen years, hardly 1,100 miles of railway were constructed in Spain ; while from 1860 to 1874, inclusive, a period of fifteen years, nearly 3,000 miles were opened.

The area of Spain proper is 190,257 square miles, and of California 183,981 square miles. At the close of the year 1873 there were 1,368 miles of railway constructed in California ; so that Spain with about the same area had nearly three times the railway mileage of California.

Beside the above there are many other roads in course of construction; for example : One from Seville to Lisbon *via* Merida and Badajos, the distance from Seville to Badajos, which is on the Portuguese border, being some 150 miles. (C. R., 1871, 1029.) One from Cordova to Belmez, 45 miles. (*Ibid.*) Opened in 1873. (C. R., 1873, 959.)

Concerning the roads which form the line between Madrid and the French frontier, the American Counsel at Bilboa, wrote in 1864 to the U. S. State Department, as follows :

"The Great Northern Railway, *Línea del Norte*, was opened (as a through line) on the 20th of August, 1864, for passengers and merchandise, from Madrid to Irún, on the French Frontier, where it connects with the railway to Paris. The line has been operated through Castile and other sections, for a considerable period; but the heavy character of the work—the engineering difficulties of carrying the line over and under the Pyrenees, which here break up into detached spurs—has long delayed the enterprise, lately so happily completed. The largest tunnel—in Guipuzcoa—is 2970 yards in length, and is 1869 feet above the sea-level. Besides this, there are 22 other tunnels, measuring in all, six miles. The Viaduct of Orinostiqui is 1120 feet long, and is carried over five arches, each having a span of 150 feet.

The construction of this road is a grand tribute to engineering skill, and will place Madrid within 35 hours of Paris." (Com. Rel., 1864, 279.)

HARVESTS IN SPAIN—RECENT YEARS.

1865. Grain abundant. (U. S. Com. Rel., 1866, 215.) One-third above average. (*Ibid*, 219.) Largest for many years. (*Ibid*, 1865, 175.)
1866. Grain hardly average. Potatoes deficient. (U. S. Com. Rel., 1867, 343.) Grain one-third less than in 1865. (Br. Con. Rep., 1867, 88.) Drought in Alicante. (*Ibid*, 1867-4, 138.)
1867. Grain moderately good. (Br. Con. Rep., 1868-7, 521.) Olives failed (*Ibid*, 1867-3, 87.) Also silk; this being the fifth year of failure. (*Ibid*.)
1868. Grain deficient. (Br. Con. Rep., 1867-8, 521.)
1869. Grain barely average. (U. S. Com. Rel., 1871, 1008.)
1870. Grain harvest good.
1871. Lemon crop in Andalusia the largest ever obtained. (U. S. Com. Rel., 1871, 1022.)
1872. Grain crops fair. (U. S. Com. Rel., 1872, 777.)
1873. Grain crops excellent. (U. S. Com. Rel., 1873, 938.)
1874. Grain crops good.

It is said that when the harvests are good in one section, the north or south of Spain, they are bad in the other; (Br. C. R., 1868-7, 521); but this statement must be taken with considerable allowance for error.

VARIETY OF AGRICULTURAL PRODUCTS.

The agricultural products of Spain are almost endless in their variety. The principal ones are as follows :

Grain Crops.—Wheat, maize, barley, rye, buckwheat, millet, oats, riee.

Green Crops.—Clover, grass, kitchen vegetables.

Root Crops.—Sweet and Irish potatoes, cassava, (*moniato* or *convolvulus batatas*,) raised in the Balearic Isles, and much used by the peasants for food; (L. T.,) liquorice; *catusas de Valencia*; peanuts.

Leguminous Crops.—Beans : 1 French beans ; 2 string beans ; 3 garbanzos ; 4 carob-beans (the *algarobo* or *locust bean*, used as cattle fodder).

Fruits.—Apples, peaches, apricots, nectarines, pears, plums, cherries, grapes, oranges, lemons, limes, pomegranates, figs, olives, melons, berries, prickly pears.

Commercial Crops.—Sugar cane, cotton, esparto grass, hemp, flax, saffron, madder, red pepper, capers.

Nuts and Forest Products.—Chestnuts, walnuts, almonds, hazel-nuts, cork, oak and pine bark, acorns.

Animal Products.—Silk, wool, cheese, leather, eggs.

Liquids.—Wine, spirits, ale, cider, oil.

The grain crops will be more particularly mentioned hereafter. Of the other crops, those which demand attention on account of their importance, are oranges and lemons, figs, olives, esparto grass, almonds, cork, silk, wine and olive oil. Some idea of the production of these articles in Spain may be gathered from the list of exports hereinafter given, after due allowance is made for the quantities consumed in the country of their production.

PRICES.

The average of the prices of grain and meat in all the 49 departments of Spain in the month of July, 1874, is shown in the following table from the *Gaceta de Madrid*:

Average Prices in all the Provinces of Spain, July, 1874.

Wheat, (<i>Trigo</i>).....	per bushel,	\$1.57½
Barley, (<i>Cebada</i>).....	"	.94
Rye, (<i>Centeno</i>)	"	1 00
Maize, (<i>Maiz</i>).....	"	1.14
Rice, (<i>Arroz</i>).....	per pound,	.05½
Large Chick Peas, (<i>Garbanzos</i>).....	"	.06
Mutton, (<i>Carnero</i>)	"	.10
Beef, (<i>Vaca</i>).....	"	.11½
Bacon, (<i>Tocino</i>).....	"	.16½

Maximum and Minimum Prices in Various Provinces.

Wheat, maximum	per bushel,	\$2.73
" minimum.....	"	.91½
Barley, maximum.....	"	1.49
" minimum.....	"	.50

It is not explained how these prices are determined, nor whether they are wholesale or retail; but I take it they are determined by public sales at market towns and at wholesale. The difference in prices in the various provinces, ranging from 91½c. to \$2.73 per bushel for wheat, and 50c. to \$1.49 per bushel for barley, show that, notwithstanding numerous railways, there still exist in Spain obstacles to the mobilization of bread-stuffs which should demand the serious attention of the Government. It can hardly be due merely to the cost of transportation by railway that wheat and barley are three times as high in one province as another, and the tables published every month in the *Gaceta* show this to be the case, more or less, throughout many years. Spain is an extensive country, and as yet comparatively destitute of water-ways and other cheap modes of carriage. Still, 500 miles by rail will carry a bushel of wheat from one end of the country to the other, and unless the extreme prices quoted are in places as yet remote from the established railway lines, or octroi duties hinder the free circulation of commodities, I am at a loss to account for the disparities shown in the prices of the principal edibles.

COMMERCIAL POLICY—CORN LAWS—TARIFFS, ETC.

The severe restrictions which formerly characterized the Spanish commercial policy have been much modified of late years.

Until 1865 the *exportation* of breadstuffs, with occasional exceptions at long intervals, was prohibited, except to the colonies. (U. S. Com. Rel., 1866, p. 215.) I find, however, that in 1860, 1861 and 1862 there were, comparatively speaking, considerable exports of grain and flour from Spain to England, and I infer from this that the harvests of

those years were unusually abundant in the former country. Although the prohibition to export breadstuffs appears to have been removed in 1865, there only appear to have been considerable exports of those articles, since that date, in 1866, 1867, 1872, 1873 and 1874.

The principal features of the regulations with regard to the *importation* of breadstuffs appear to have been as follows :

- 1849. Act of July 17 prohibited imports of breadstuffs except at periods of scarcity. (Com. Rel., 1862, 220.)
- 1856. Grain crop deficient. Decree of May 18, 1857, admitted breadstuffs free until December 31, 1857. Decree of September 16, 1857, extended the time until June 30, 1858. Breadstuffs imported from France, Morocco, Egypt, England and the Baltic. (Com. Rel., 1858, pp. 99-100.)
- 1863. January 1, new tariff. Metrical system introduced at custom houses. Octroi duties abolished and tariff increased on principal "tropical" imports, such as tea, coffee, etc. Tariff schedule simplified, but rates not lowered; on contrary, raised. Importation of breadstuffs still prohibited. (Com. Rel., 1863, 217.)
- 1865. April 1, regulations regarding imports of flour into colonies. June 28, other regulations, to wit: heavy discriminating duties on foreign flour into colonies. For example, duty on American flour into Cuba \$9.50 per bbl.; on Spanish, \$2.25. (Com. Rel., 1865, 176.)
- 1867. Duties on agricultural implements reduced to one per cent. in Spanish and one and one-fifth per cent. in foreign vessels. (*U. S. Monthly Statistics*, November, 1867.)
- 1867. July 1, importation of grain still prohibited. (Br. Con. Rep., 1867, 228.)
- 1867. August 22, decree admitting breadstuffs as dutiable articles for four months. October 25, time extended to June 30, 1868.
- 1868. January 11th and 17th, wheat and other alimentary substances admitted *free*. April 22, free entry of above articles extended to December 31, 1868.
- 1869. July 12, new tariff in force from August 1. Duties reduced on certain classes of articles about five per cent. Premium of \$3.50 per 100 kilogrammes on exports of sugar refined in Spain. *Discriminating duties abolished*. Duties on agricultural implements one per cent. *ad valorem*. Duties per 100 kilos on rice, cleaned, \$1.60; oats, 52c.; barley and maize, 45c.; wheat, 60c.; and peas, beans, etc., 60c. On flour 50 per cent. in addition to the grain of which it is made. (For full schedule, see *U. S. Monthly Statistics*, July, 1869.)
- 1873. Breadstuffs still permitted to be imported.
- 1874. " " " " "

COMMERCE.

As increase of commerce is far from being a necessary indication of increase of wealth, I do not offer as evidence of progress in Spain the increase which has lately taken place in her commerce, both foreign and domestic. But as I wish to show the character of her foreign commerce, particularly the exports, and still more particularly the exports of agricultural produce, I herewith append a complete table of the exports of 1872, and such other statistics on the subject as will tend to show the nature and extent of the agricultural and mineral products of Spain.

Table Showing the Quantities of the Principal Articles Entered for Exportation at the Custom-Houses of Spain (including the Balearic Isles) during the Calendar Year 1872.

<i>Principal Articles,</i>	<i>Quantities.</i>	<i>Principal Articles.</i>	<i>Quantities.</i>
Olive oil, pounds.....	42,187,505	Wheat flour, lbs.....	10,379,672
Spirits (aguardiente), gallons.....	1,552,367	Soap, lbs.....	10,460,624
Preserved food, pounds.....	4,673,055	Wool, raw, lbs.....	9,768,472
Corks: manufactured, M.....	1,015,312	Legumes: carob beans, lbs.....	16,881,755
in slabs, lbs.....	3,212,582	garbanzos, lbs.....	7,576 205
in pieces, lbs.....	1,248,643	beans, lbs.....	646,672
Esparto: crude, lbs.....	104,789,203	French beans, lbs.....	1,338,113
manufactured, lbs.....	6,201,923	Metals: quicksilver, lbs.....	4,180,946
Spices: anise, lbs	1,379,697	copper, ingots, lbs.....	780,960
saffron, lbs.....	174,900	iron, lbs.....	12,476,053
cumin, lbs.....	458,858	lead, lbs.....	207,701,747
pepper, ground, lbs.....	846,270	Ores: zinc, lbs.....	73,596,800
Dry Fruits: almonds, lbs.....	8,220,437	copper, lbs.....	584,987,900
hazel-nuts, lbs.....	12,257,696	iron, lbs.....	1,578,831,800
peanuts, lbs.....	4,278,446	other, lbs.....	105,015,984
raisins, lbs.....	110,471,456	Paper, lbs.....	4,304,582
all other, lbs.....	10,190,715	Soup pastry (maccaroni, etc.), lbs.....	5,139,497
Fresh Fruits: lemons, lbs.....	15,847,236	Licorice: root, lbs.....	13,719,741
oranges, M.....	547,400	extract and paste, lbs.....	1,604,931
grapes, lbs	9,620,080	Salt, lbs.....	328,908,136
all other, lbs.....	2,485,767	Silk, raw, lbs.....	309,661
Cattle, number.....	246,946	Wines: white, gal's.....	1,250,200
Grain: Canary seed, lbs.....	977,051	common, gal's.....	24,564,700
rice, lbs.....	10,934,605	do. of Catalonia, gal's.....	2,645,400
eats, lbs.....	3,472,341	sherry and port, gal's.....	9,120,400
barley, lbs.....	11,362,480	Malaga, gal's.....	567,000
rye, lbs.....	6,394,923	other sweet, gal's.....	43,000
wheat, lbs.....	113,809,762		

The most valuable articles of export at the present time are, 1. Wines; 2. Metals and ores ; 3. Fruits ; 4. Breadstuffs : 5. Oil ; 6. Cork ; 7. Cattle ; 8. Salt ; 9. Wool ; 10. Esparto ; 11. Silk ; and 12. Spirits ; and generally in the order named.

Wines.—The export of wine consists chiefly of sherries, which had usually amounted to some 8,000,000 or 10,000,000 gallons per annum, but in 1873 rose to 15,000,000 gallons, and of common red wines, which had usually amounted to some 25,000,000 gallons per annum, but in 1873 rose to 40,000,000 gallons. The following remarks on these two classes of wine will doubtless be read with interest :

About one-fifth of the entire shipments of so-called sherry wine from the Cadiz district consists of low and spurious compounds mixed in Spain, and worth in Cadiz from \$50 to \$100 per butt of 30 arrobas, say, net, 100 gallons. About two-fifths consist of ordinary sherry, worth from

\$125 to \$225 per butt. About three-tenths consist of good sherry, worth from \$225 to \$350 per butt. The balance, one-tenth, consists of superior sherry, worth from \$350 to \$1,000 per butt.

The best wines come from the district between Port St. Mary and Jerez, the low grades from other parts of Spain. The grapes are pressed with the feet, cased in sandals of esparto grass, and the wine has an earthy, tarry flavor, which is only removed from it after doctoring. The spurious compounds contain some of this wine, to which are added German potato-spirits, water, molasses, litharge and other adulterations. It is these two last grades of wine that the British chiefly sell and Americans buy. Indeed we buy from the British if even we buy in Cadiz; for there a large portion of the houses engaged in the trade are English. The wines are entered at our custom-houses as containing less than 22 per cent. of alcohol; while they really often contain 40 per cent.

There are four substances generally used in the manufacture of sherry. First, gypsum; second, a coloring substance; third, a sweetening substance; fourth, a spirituous substance. It has already been stated how these adjuncts are supplied to the low grade sherries; it only remains to state what substitutes for those mentioned are used in the preparation of the medium grades.

First, gypsum; second, color-wine, or wine boiled down to the consistency of sugar-house syrup; third, sweet wine, or wine made from raisins; fourth, brandy. Wine made in this manner is tolerably palatable. Most of the "crack" dry sherries belong to this class. They are entered at our custom-houses as containing not over 22 per cent. of alcohol. They really contain from 32 to 36 per cent.

The only really pure sherry wine is Amontillado, but as every sort of trash is called Amontillado, it is difficult for any one but an expert to distinguish the genuine article from the spurious. However, it is pretty safe to say that little or none of it comes to the United States.

Amontillado is not always the product of design. The quantity made in Spain is quite small, and the wine often the result of accident. To make this wine, the fruit is gathered some weeks earlier than for other sherries. The grapes are trodden by peasants with wooden sabots on their feet. The wine is then allowed to ferment for two months or more, when it is racked and placed in depositaries above ground. Of a hundred butts but two or three may turn out Amontillado. This Amontillado is neither the product of particular vineyards, nor always the result of a careful or special mode of treatment, but the unaccountable offspring of several modes of treatment before, during and after fermentation. Fair Amontillado (by no means the best) is worth in Cadiz \$1.50 to \$2 a bottle. It probably cannot be purchased in the United States at any price. There is not a drop of spirits added to it, and no sherry wine containing foreign alcohol can be Amontillado.

I am assured by the Spanish Consul at Philadelphia that a very con-

siderable proportion of the so-called French claret wines, mostly the lower grades, are compounds, made of Spanish wines, imported chiefly at Cette. These wines are mixed with water, cheap spirits, a purple-coloring matter, and some other substances. They are then bottled, labeled with high sounding names and exported to all parts of the world as Bordeaux wines. In many cases the adulteration is carried so far that there is scarcely a trace of wine in the mixture, and what there is of it is the common *vino tinto* of Spain, worth about 22 to 23 cents a gallon in that country. (The total value of the 37,262,126 gallons of this class of wine exported from Spain in 1873 was \$8,467,785.)

The following table shows the quantities of wines exported from the Peninsula of Spain and the Balearic Isles during the years 1872 and 1873 :

Exportations of Domestic Wines from Spain in the Calendar Years 1872 and 1873, respectively.

CLASS OF WINES.	1872. GALLONS.	1873. GALLONS.
White wines	1,250,153	1,409,110
Common wines.....	24,564,686	37,262,126
Ditto of Catalonia	2,645,432	2,713,083
Jerez (sherry) wines	9,120,389	14,840,609
Malaga wines.....	566,504	315,998
Rich wines (generosos) from various parts....	43,001	120,518
Total.....	38,190,165	56,661,444

Breadstuffs.—This trade has increased enormously. Since the prohibition to export breadstuffs was removed in 1865, the shipments from Spain have increased over four times, or from about 5,250,000 bushels of wheat and flour to about 23,000,000 bushels.

TABLE SHOWING THE EXPORTS OF WHEAT AND WHEAT FLOUR FROM SPAIN :

Year.	Flour. Pounds.	Wheat. Pounds.	Total. Pounds.	Year.	Flour. Pounds.	Wheat. Pounds.	Total. Pounds.
1860	96,800,000	No data.	96,800,000	1867	110,074,800	95,256,000	205,330,800
1861	160,600,000	"	160,600,000	1868	43,434,600	5,040,000	48,474,600
1862	94,600,000	"	94,600,000	1869	No data.	No data.	No data.
1863	84,820,800	4,043,040	88,663,840	1870	"	"	"
1864	78,234,200	2,430,300	80,664,500	1871	"	"	"
1865	87,687,600	35,940,000	123,627,600	1872	223,036,000	250,382,000	473,418,000
1866	167,312,200	147,336,000	314,648,200	1873	441,540,000	931,480,000	1,3730,20,000

The exports of breadstuffs other than wheat or flour are unimportant. The following tables gives the details for the year 1872 and 1873 :

TABLE, SHOWING THE EXPORTS OF VARIOUS GRAINS AND LEGUMES FROM SPAIN, IN THE YEARS 1872 AND 1873, RESPECTIVELY:

BREADSTUFFS.	1872. POUNDS.	1873. POUNDS.
Rice.....	10,934,605	10,441,506
Oats.....	3,472,341	6,174,870
Barley.....	11,862,479	6,389,007
Rye.....	6,394,923	4,033,663
Soup pastes.....	5,139,497	4,723,532
Carob beans.....	16,881,755	8,783,780
Garbanzos (large chick peas).....	7,576,205	7,885,100
Beans.....	646,676	1,255,465
French or Kidney beans.....	1,338,113	1,571,123
Total.....	64,246,594	51,258,046

The imports into Spain consist at the present time chiefly of tropical products and northern manufactures. Breadstuffs, chiefly wheat and maize, are only imported in years of scarcity. The following are the imports of breadstuffs in the year 1872 and 1873, respectively :

BREADSTUFFS.	1872. POUNDS.	1873. POUNDS.
Wheat.....	62,473,622	154,000
Other grain.....	17,062,228	4,509,690
Flour	16,179,207	153,000

MINING.

The revival of mining in Spain dates from the decree of Ferdinand VII., of July 4, 1825. (Br. C. R., 1868-5, 299.) That this judgment must be well based is very evident from the degree of progress shown in the following tables. The statement for 1780 is from Hoppe'sack, quoted by Macgregor. Those for late years are from the Br. Con. Rep., 1867-8, 560, the U. S. Monthly Stat., Mar., 1870, and U. S. Com. Rel., 1873, 964.

Table showing the number of metrical tons of (2,200 pounds each) of Ore raised in Spain during the years named.

Year.	Iron.	Lead.	Argentiferous Lead.	Silver.	Copper.
1780	9,000	1,600	.....	.....	15
1860	175,503	320,603	.....	4,230	224 152
1861	130,259	361,164	.....	3,005	246,611
1862	213,192	281,202	.....	2,523	313,913
1863	212,676	313,851	.....	3,060	343 1:1
1864	253,120	274,589	25,111	1,818	213,389
1865	191,684	271,318	19,323	1,125	273,184
1866	180,131	267,494	21,312	1,704	279,527
1870	436,586	318,985	38,248	2,679	395,695

Year.	Tin.	Zinc.	Cinnabar Mercury.	Phosphorus.	Antimony.	Manganese.
1780	....	125	900	.....	300	.....
1860	....	108,802	21,662	.....	....	28,863
1861	...	24,743	18,254	.....	....	14,071
1862	....	41,104	27,441	.....	....	6,459
1863	....	48,124	26,304	.....	....	14,860
1864	63	80,222	19,800	.....	74	22,246
1865	93	70,158	16,425	12,800	29	24,864
1866	30	73,423	18,547	9,304	..	39,624
1870	28	113,583	23,744	27,978	80	16,823
Year.	Alkali.	Alum.	Sulphur.	Coal.	Lignite.	Asphaltum
1780	....	.....	.....	(1858, 170,000)	....	....
1860	17,557	.....	23,045	321,773	17,523	....
1861	11,691	.....	23,148	331,055	22,292	....
1862	5,022	.....	12,639	360,246	28,696	....
1863	8,090	.....	11,982	401,301	50,302	....
1864	11,822	8,179	9,788	387,904	38,529	3,825
1865	7,667	9,044	10,708	461,396	34,455	795
1866	9,912	7,588	16,242	393,105	39,559	2,663
1870	7,975	13,250	15,156	621,847	40,095	478

The number of metrical tons of Salt produced in the Government Salt Mine was as follows

Year.	Met. tons.	Year.	Met. tons.
1860	391,692	1863	187,271
1861	201,775	1869	170,000
1862	182,208	1870	37,917

The number of producing Mines of all kinds throughout Spain and the laborers and steam engines employed therein are as follows :

Year.	Number of mines.	Number of la- borers.	Number of steam engines.
1860	1,988	33,297	39
1861	1,795	33,603	51
1862	1,886	36,635	52
1863	1,594	35,801	64
1864	1,842	37,201	76
1865	1,912	37,515	80
1866	2,283	38,483	94
1870	3,381	* 41,010	148

It needs but a cursory glance at these tables to perceive that of late years Spain has made great progress in this important branch of her national industries. Details of the smelting and refining establishments for iron and steel, lead, silver, copper, etc., none of which nor their products, have been included in the above tables, will be found in the

* To wit: men, 33,277; women, 1,508; boys, 6,225.

U. S. Com. Rel., for 1873. For account of power-looms, see Br. Con. Rep., 1867-8, 550; of fisheries, U. S. M. S., Mar., 1870; of manufactories in Catalonia, U. S. Com. Rel., 1862, 208; and 1864, 262.

PRODUCT OF BREADSTUFFS.

The accounts of this product which have appeared from time to time vary so considerably, both as to total amounts and details that it is very difficult to reconcile them.

The earliest account relates to the last half of the seventeenth century and is, I believe, from Miguel Ozorio y Redin. It states the total product of grain to be 120 million bushels, two-thirds wheat and rye, and one-third barley and oats. The population is believed to have been at that time about seven and a-half millions. The product adduced would therefore equal 16 bushels per capita per annum, which seems excessive. The account is, however, not to be rejected as valueless. The numbers of the population supposed to have existed at that time are by no means certain; the consumption of grain was probably greater, and of meat, less than at more recent periods. The account may not relate to an average year, but an exceptionally good one; finally, it is to be presumed that, though not specified, the product of chestnuts, dry legumes and other substitutes for grain, is intended to be included in the principal articles mentioned.

The next account, quoted by Macgregor from the "Census and Returns" of 1803, is as follows :

Breadstuffs—Product of Spain, in 1803.

	Hectolitres.	Bushels.
Wheat	17,060,000	47,768,000
Barley.....	8,321,000	23,298,800
Rye	5,626,000	15,752,800
Oats, maize, rice, etc.	3,619,000	10,133,200
	34,626,000	96,952,890

We have here, a total product of some 97 million bushels of grain for a population of some 10,400,000 souls, an average of about nine and a-half bushels per capita. Bearing in mind that potatoes, chestnuts and legumes are omitted, I am inclined, for various reasons, to regard this estimate as substantially correct.

Mr. L. S. Sackville West, H. B., M. Secretary of Legation at Madrid, in reporting to his Government, under date of July 1, 1865 (Rep. Sec. Leg., 1866, 179), states that "fifty years ago, Spain, say with a population of 10,000,000, produced 38 million hectolitres (106½ million bushels) of grain." This statement corroborates the census and returns of 1803.

An estimate for the year 1849 appears in Mr. Joseph Fisher's work on *Food Supplies* (London, 1866), and gives the total product of cereals (omit-

ting maize) at 12,584,322 quarters, or say 100,674,576 bushels. Allowing 20 million bushels for maize and two million bushels for rice, we have a total in round figures of 123 million bushels of grain. The population at that time amounted to about 13,700,000, and the product of grain was therefore about nine bushels per capita, a proportion which appears to be substantially correct.

Says Mr. Sackville West: "In 1863, France produced * * * and Spain 66 million hectolitres of grain." As it is evident from the context and also from the fact that the cadastral census of Spain was taken in 1857, that that is the year to which Mr. West refers in regard to Spain, I have taken the liberty to so treat his statement. Sixty-six million hectolitres amount to 184,800,000, bushels, and this, among a population of 15,000,000, amounts to an average of about $12\frac{1}{3}$ bushels each. If Mr. West's statement is applied to the year stated, 1863, when the population was a fraction over 16,000,000, the result would be an annual product per capita of about $11\frac{1}{2}$ bushels. From both of these results I am inclined to believe that Mr. West's estimate includes potatoes, chestnuts and legumes. In such case I regard it as substantially correct.

For the year 1857 we have another account. This was given by no less an authority than the late Albany W. Fonblanque, the accomplished statistician of the British Board of Trade, and is published in the *Agricultural Returns* of H. B. M. Board of Trade for the year 1867. Ever since that year it has been regularly published in the Returns as the "estimated quantities of the principal kinds of corn and potatoes produced in Spain," and it therefore appears in the A. R. for 1874, over the signature of Mr. A. R. Valpy, Mr. Fonblanque's no less accomplished successor. Notwithstanding these high authorities and the official sanction which the publication of the account in such a work conveys, I am compelled to regard it as defective. It states that Spain produced in 1857, 168,140,692 bushels of wheat; of barley 76,427,587 bushels; and of rye, 24,727,483 bushels; together, 269,295,762 bushels of grain; an average of nearly 18 bushels per capita of population, to say nothing of maize and patatoes, which are important articles of consumption in Spain; nor of oats, rice, buckwheat, millet, chestnuts nor legumes—proportions that so radically differ from all other accounts as to lead to the suspicion that error has been committed in the conversion of the quantities.

For the year 1868 we have the account laid before the Statistical Congress at the Hague, by Mr. Samuel B. Ruggles, of New York. This is as follows:

Cereal product of Spain, with Balearic Islands, in 1868: wheat, imperial bushels, 87,732,150; rye, 44,427,940; barley, 47,731,500; oats (included with other cereals); buckwheat and millet, 22,975,300; maize, *nil*; rice, 2,000,000; total 204,866,890 imperial bushels. With the exception of rye which is over-estimated, and buckwheat and millet, the estimated product of which ought to be credited almost entirely to maize, I am inclined to regard Mr. Ruggles' account as substantially correct. The total sum

gives an average allowance of grain per capita of about $12\frac{1}{3}$ bushels, which agrees with all of the estimates that are regarded as reliable.

For the year 1873, I have the following very explicit and detailed account, recently transmitted to me from Spain :

Account of the produce of Breadstuffs in Spain and the Balearic and Canary Islands for the year 1873.

BREADSTUFFS.	BUSHELS.	BREADSTUFFS.	BUSHELS.
Wheat	110,000,000	Rice.....	2,000,000
Barley.....	40,000,000	Buckwheat and Millet	5,000,000
Rye.....	20,000,000	Potatoes	25,000,000
Oats	3,000,000	Chestnuts	3,000,000
Maize.....	25,000,000	Dry Legumes.....	5,000,000
		Total.....	238,000,000

Reckoning the population in 1873 at about 17,200,000, the result is an average of all kinds of breadstuffs of 13.8 bushels per capita, and of grain alone 170,000,000 bushels, or about 9.9 bushels per capita. Allowing 23,000,000 bushels for the export of grain, the consumption would be 147,000,000 bushels, or 8.5 per capita.

I am inclined to believe that this account, though it agrees very well with those relating to previous years, underrates the true product of Spain, though perhaps only to a small extent. Altogether it is the best account we have, and must be taken as an exponent of Spain's present capacity to produce breadstuffs until a more definite account can be rendered. Grouping together such of the preceding accounts as seem reliable, we have the following comparative results :

COMPARATIVE ESTIMATE OF THE BREADSTUFFS PRODUCT OF SPAIN AT VARIOUS PERIODS.

Year.	Grain. Bushels.	Potatoes, Chest- nuts and Legumes. Bushels.	Total Bread- stuffs. Bushels.	Population. Approximate
1803.....	97,000,000	.....	.....	10,400,000
1849.....	123,000,000	.....	.....	13,700,000
1857.....	.....	.....	184,800,000	15,000,000
1868.....	205,000,000	.....	.....	16,700,000
1873.....	203,000,000	33,000,000	238,000,000	17,200,000

These results, in the transcendantly important department of agricultural production, show the same remarkable advance during the past twenty years as has already been noticed in other respects, and fully establish the claims set forth at the outset of this paper.

It will perhaps be noticed that, except as to exports in the year 1873, I have taken no notice of the imports and exports of breadstuffs. The reason for this was that among the periods under review relating to agricultural production, 1873 was the only year in which the foreign commercial movement of breadstuffs appeared worthy of note.